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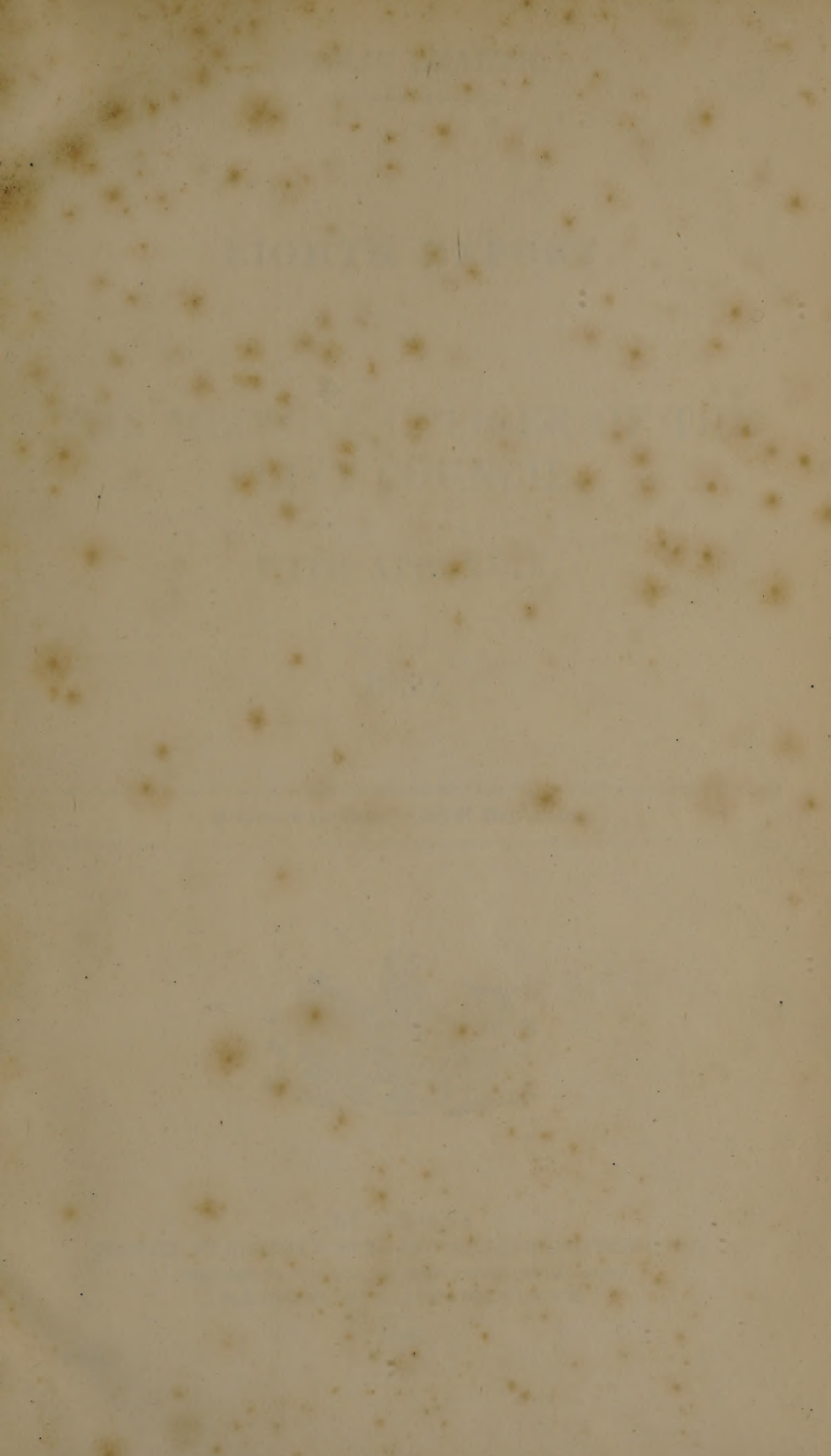


















PUBLIC HEALTH.

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**EIGHTH REPORT**  
**OF**  
**THE MEDICAL OFFICER OF THE**  
**PRIVY COUNCIL.**  
**WITH APPENDIX.**

1865.

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Presented pursuant to Act of Parliament.

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**LONDON:**  
**PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,**  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY,  
FOR HER MAJESTY'S STATIONERY OFFICE.

1866.

PUBLIC HEALTH

EIGHTH REPORT

THE MEDICAL OFFICER OF THE  
TRINITY COLLEGE

WITH APPENDIX



Printed by George E. Fry and William Taylor, London.

WILLIAM SIMON

Medical Department of the Admiralty

by Richard J. Ross, M.D.



LONDON:

PRINTED BY GEORGE E. FRY AND WILLIAM TAYLOR, LONDON.

PRINTED AT THE OFFICE OF THE MEDICAL DEPARTMENT OF THE ADMIRALTY, LONDON.



TO THE LORDS OF HER MAJESTY'S MOST  
HONORABLE PRIVY COUNCIL.

MY LORDS,

IN obedience to the Public Health Act, 1858, I have the honor of herewith submitting to your Lordships, for presentation to Parliament, my statement of the proceedings which were taken under the Act during the year 1865, and, in connexion with that statement, some few considerations on other important sanitary facts of the year.

I beg to remain,

My Lords,

Your Lordships' obedient servant,

JOHN SIMON.

MEDICAL DEPARTMENT OF THE COUNCIL OFFICE,

8, Richmond Terrace, S.W.,

March 31st, 1866.

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The following is an account of the proceedings which during the year 1865 were taken by the Lords of the Privy Council under the Public Health Act, 1858. It adverts also to other kindred facts of the year, so far as Medicine was concerned with them, and particularly to certain questions which during the year came before me as their Lordships' medical referee in relation to the law of Quarantine.

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## I. VACCINATION.

In 1865, as in previous years, my Lords superintended public vaccination; including (1) the proceedings of local authorities under the statutes which relate thereto, and (2) the arrangements by which the national supply of vaccine lymph is maintained, and (3) the arrangements which give effect to the Order of Council regulating the qualifications of public vaccinators.

1. In *Superintendence of Local Proceedings* their Lordships ordered the inspection of 787 vaccination districts, comprised in 151 different unions or parishes. These inspections (made by Drs. Seaton and Stevens) represented the re-commencement of a systematic course, in which during the previous four years all the vaccination-districts of England and Wales had already been once inspected. The results of the first examination are recorded in my reports for the successive years (1860-4) during which it was in progress; and the results of the present examination, so far as it has gone, have been carefully compared with them. It is very satisfactory to me to report that each inspector bears witness to an improvement in the performance of public vaccination within the area which he has revisited. It is true that great, very great, improvement still remains to be made before the public will have nearly realized the advantages which Jenner's discovery can confer; but in the present most unsatisfactory state of the law (to which on previous occasions I have drawn attention) even a very little real progress deserves mention, certifying, I think, that, except for that state of the law, the progress would have been far beyond its present stage.

The improvement reported is particularly in the style of the vaccination. Thus, in respect of the amount\* of vaccination-scar

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\* The amount of vaccination-scar (or scars) on the arm or arms of a successfully vaccinated person ought decidedly not to be less than half, and is probably the better for reaching three quarters, of a square inch. It does not practically matter whether this quantity is got by the existence of one very large scar, or by the existence of several smaller ones,—a difference which depends on inessential differences

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on the arms—one very important measure of the efficiency of the vaccination, Dr. Seaton reports that, whereas on his former inspections about  $63\frac{1}{2}$  per 100 of the children he examined showed certain degrees of scantiness of scar, now only 42 per 100 showed the same degrees of scantiness\*; and that often, when he compared in one school or district the children who had been vaccinated before his previous inspection with the children who had been vaccinated subsequently, he found that instances of scanty scar were twice or thrice or four times as numerous in the former group of children as in the latter. And as regards the other cardinal point—the quality† of the vaccination-scars observed, he also finds notable improvement. Thus he says: “In some districts which I had before specially noted for the very large proportion they exhibited of marks of imperfect character, the change was really very remarkable. In one district in Herefordshire in which the performance of vaccination had been so indifferent that 40 per cent. of the vaccinated children seen on the first inspection had very imperfect marks, and the great majority of the remainder had but passable marks, the proportion with thoroughly good or fine scars not exceeding 10 per cent. (it was in fact one of the worst districts I had ever been in) I now found, on examining a lot of young children, 65 per cent. of them with thoroughly well characterized marks, and only 14 per cent. with marks that were imperfect. In a district of the same kind in Hampshire I found, on comparing the elder with the younger children seen in this inspection, that 20 per cent. of the former, but only 10 per cent. of the latter, had marks which were imperfect. . . . Taking the group of unions (the unions in Cornwall) in which there had been the fewest changes of vaccinators since the first inspection—only seven changes in the 73 districts—the improvement in character of marks was very gratifying; for while in the former inspection I had noted above 18 per cent. of the children examined as having imperfect marks, on the present occasion the proportion with imperfect marks in the infant schools very little exceeded 6 per cent.” Also Dr. Stevens, as regards the area of his inspections, reports a marked general improvement in the quality of vaccination. Of 203 districts, in which he had

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in the mode of vaccinating. Mr. Marson's method is to make, about three quarters of an inch apart, five punctures, not very superficial, each of which gives a vesicle, and eventually a cicatrix, of circular form, and of diameter varying from three to five eighths of an inch. Mr. Ceely, using G. Weir's vaccinator at four different spots, about three quarters of an inch asunder, raises on each spot a compound vesicle or group of vesicles; and the result at each spot is a cicatrix of oval or elliptical shape, averaging about half an inch long by a third of an inch broad.

\* In some parts of England the custom of half-vaccinating had been very current. Thus in Herefordshire (except at and about Hereford) it had been the habit of vaccinators to make only one or two punctures or small scarifications; so that Dr. Seaton, on his first inspection of this county, found that of all the children he examined, including those seen at Hereford, only  $10\frac{1}{2}$  per cent. had more than two average scars; whereas, on re-inspection, the proportion with more than two scars was 47 per 100.

† The quality of vaccination-scar, to which too much importance cannot be attached, is that it shall be slightly depressed, and in its whole extent be dotted over with minute pittings.



sufficient data for comparison, 118 gave him evidence of such improvement. I regret that I cannot report of either area of observation that the inspector found improvement universal, or, where existing, always as great as was to be desired.\*

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As regards mere number of infantine vaccinations in proportion to number of births, probably no important general change has occurred. The inspectors cite many districts in which there had been progress, but, unfortunately, also others in which the non-performance of vaccination has been scandalous.† Cases of the latter kind involve such injurious results that I think it right to mention some of them in detail. Thus, on the present re-inspection, Dr. Stevens finds the union of Northampton in little better condition than when in 1860 Dr. Seaton spoke of it, "as affording the most remarkable illustration of the neglect of vaccination" which had yet come before him:‡ he states, namely, that the public infantine vaccinations of this union are still only 10 per cent. of the births; that the county of Northamptonshire, as a whole, "is the most deficient in quantity of vaccination of any seen during the inspection;" and that, of this least-vaccinated county, the Northampton union is the least-vaccinated part. In the decennial period, 1851-60, the small-pox death-rate of children in this union was  $4\frac{1}{2}$  times as high as the average small-pox death-rate of England, and exceeded that of any union in England except Merthyr Tydfil and Plymouth: in 1856 nearly a third of the entire mortality of the union, and in 1860 nearly a fourth of it, was due to that one disease: Dr. Stevens now reports of the union that "from 1860 to the present time little or no improvement has taken place, and it has been and still is a centre in which smallpox is almost constantly present, and from which that disease is largely distributed to the neighbouring towns and villages." Dr. Seaton refers particularly to the great small-pox

\* Of the five counties in which, or parts of which, Dr. Seaton made his re-inspection—Sussex, Hants, Hereford, Cornwall, and Devon—Devonshire was, on the whole, that which exhibited the least improvement. He states that in several districts in this county vaccination is still exceedingly ill-performed; as especially in parts of the Tiverton and Torrington unions, in the district of Bideford, and (below all) in the districts of Hatherleigh and Swymbridge. Dr. Stevens says that in parts of the populous manufacturing districts of Staffordshire, Shropshire, and Worcestershire, generally known as the "Black Country," the quality of vaccination is still "really infamous."

† Thus Dr. Seaton, who is in the habit of distinguishing his districts into four classes according to the degree in which the number of infantine vaccinations approaches to the number of births in each district, found the proportion of districts deserving to be placed in his first class on the present re-inspection more than double what it was on the previous inspection. Still these districts did not amount to more than one sixth of those included in his re-inspection, and, though comprising several of from 6,000 to 10,000 inhabitants, did not include any of the larger towns. A great many other districts exhibited improvement in less but varying degrees. Others showed no advance whatever, the neglect in many being of the grossest kind. Dr. Stevens's general results were not materially different. As illustrating neglect of public vaccination, he enumerates 42 districts in which for a year or more no infants had been vaccinated by the public vaccinator. And Dr. Seaton cites numerous districts in which he found a fifth or more of the children in the infant schools unvaccinated; or (as in the town of Ross and in Redruth) a third; or even (as at Combe-martin, Hatherleigh, Okehampton and Camborne) nearly or more than half.

‡ Third Ann. Rep. of the Medical Officer of Privy Council, Appendix, page 71.

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mortality of Portsea Island, and of the town and district of Leominster:—of Portsea Island he says that, when the epidemic began, the number of unvaccinated children amounted to thousands, and the deaths from small-pox in one year were nearly a fourth of the total average mortality of the union; and in Leominster district, where also vaccination was very greatly in arrear, there were in a few months between 40 and 50 deaths from small-pox. Besides the mortality which the inspectors report as having resulted from neglect of vaccination in these and many other unions, other evidence may be quoted of the sufferings to which that neglect had led:—"of 1,526 unvaccinated children whom I examined in schools and workhouses," says Dr. Seaton, "292 or 19 per cent. had unequivocal marks of having suffered—some of them recently, others at an earlier period—from small-pox: of 11,061 vaccinated children only 12, or scarcely more than one in a thousand, had traces, and these generally very slight traces, of having had small-pox."

It may be added that, during the year 1865, the Lords of the Council, being informed of outbreaks of small-pox in the three unions of Shepton-Mallet, Elham, and Gravesend and Milton, ordered letters on the subject to be addressed to the Board of Guardians of these unions respectively.

Supply of  
Vaccine  
Lymph

2. In answer to 18,504 applications made during the year for *Vaccine Lymph*, there were supplied, under their Lordships' orders, 142,430 charged ivory points, 2,438 charged squares of glass, and 5,352 charged capillary tubes. Particulars as to the sources whence this lymph was derived are given in Appendix No. 1. Of the 18,504 applications, in answer to which lymph was given, 15,698 came from medical practitioners (including 1,513 Poor Law medical officers) in England and Wales; 1,696 from Ireland; 512 from Scotland; 312 from the army; 117 from the navy and emigration department; 102 from colonies; and 67 from diplomatic and other foreign services.

Besides the above-mentioned 18,504 applications, there were cases where lymph was desired for the purpose of vaccinating horned cattle. Some crude speculations which had been published as to the nature of the prevailing cattle-plague, with still cruder half-promises that vaccination would prove protective against the disease, had, very naturally, filled the cattle-owners of the country with eagerness to provide the suggested security for their herds; and for a while (beginning towards the end of December) the demand for vaccine lymph was insatiable. As this demand, with the public hopes which created it, continued till after the end of 1865, and indeed did not reach its maximum till about the middle of January in the present year, I perhaps ought not, strictly speaking, to say more of it in this report. But as it would be useless to refer again next year to the subject, I may say that during the early part of January the applications for lymph (among which it was not generally possible to discriminate the applications of cattle-vaccinators) were so numerous as

to endanger the solvency of the establishment. In the previous ten years, including periods when human small-pox had been most widely epidemic, the average number of applications in the month of January had been 932, and the highest number had not reached 1,500. But in this January the applications exceeded 3,000; among which only 279 could be discriminated as for veterinary purposes; and on the 18th of the month, when this great demand culminated, the total of the one day's applications were as high as 178. Of course, whenever I learnt from the terms of an application that to vaccinate cattle was the object for which the lymph was wanted, my duty was to consider the applicant's claim as subordinate to that of persons who wanted lymph for human vaccination; and, as the lymph-supply at my disposal was not more than enough to provide for the latter purpose, I felt obliged to refuse lymph to the 279 applicants whom I could discriminate as cattle-vaccinators. There must, however, have been many other hundreds of cases where also the applicant's object was to vaccinate cattle, but where this object, being undeclared in his application, could not be discriminated and made a ground for refusal. Under these circumstances there was great reason to fear that the innumerable inconclusive trials which amateurs were making in all parts of the country as to the value of cattle-vaccination, and the consequent enormous waste of vaccine lymph, would cause such an exhaustion of the national lymph-supplies as must seriously derange human vaccination throughout the United Kingdom. Fortunately, the truth as to the uselessness of the proposed cattle-vaccination became known before that great mischief was produced; and the demand for lymph subsided as rapidly as it had risen. It may be proper for me to add, that, if the scientific observations which were being made under the auspices of the Cattle Commissioners, and otherwise, had justified an opinion that the vaccination of cattle ought to be recommended, special arrangements would have been necessary to supply lymph for that purpose; and that, had the case arisen, I should have submitted to the Lords of the Council suggestions which I had in readiness for such arrangements.

In 1865, as in preceding years, my Lords took special means to satisfy themselves as to the undiminished efficiency of the lymph which is supplied under their direction. Dr. Seaton, whom I, under their Lordships' orders, instructed to make this inspection, visited all the stations whence the public lymph-supply is derived, and reported quite satisfactorily of the quality of the lymph which was in use. The list of stations supplying lymph was increased by the addition of one of the parochial stations at Salford. And lymph has also been supplied from an important vaccinating-station at Glasgow.

3. All the *Educational Vaccinating-Stations* of England were comprised in the just-mentioned inspection. The only change which took place in regard to these stations in 1865 consisted in the appointment of Dr. Edward Lowe Webb to the Pimlico station in the place of Mr. W. P. Jorden, deceased.

Educational  
Vaccinating-  
Stations.



11. THE DISTRIBUTION OF DISEASE IN ENGLAND, AND THE  
CIRCUMSTANCES BY WHICH IT IS REGULATED.A. *Systematic Proceedings.*

In pursuance of the systematic study which my Lords have for several past years had in progress in this department, as to the distribution of disease in England, and as to the circumstances by which the distribution is regulated, their Lordships in 1865 ordered some additional inquiries, generally of the same kind as heretofore, to be undertaken, and also, in one respect, opened a new line of investigation.

House Accom-  
modation of  
the Poor.

1. Of these inquiries, so far as finished within the year, the largest related to the *Housing of the Poorer Population in Towns*. In general intention this inquiry harmonised with one which had just before been made into the housing of the Rural Poor. Both were undertaken with reference to projected amendments of the Public Health Law, and had for their chief object to ascertain how far that law in its present state enables local authorities to prevent dangerous degrees of overcrowding in dwellings, and the use of dwellings unfit for human habitation. In proceeding to investigate these questions, particularly in the present urban field of inquiry, an important distinction had to be observed. Wherever the evils in question should be found existing, heed would have to be given whether the authority was powerless to prevent them, or was merely unwilling to exercise its powers; and, as powers for sanitary purposes are not in all places—especially not in all towns—the same, it would be necessary to distinguish places where the Local Government Act is in operation, or where special powers have been given by particular local Acts of Parliament, from places where only the general statutes are in force. Likewise the possibility would have to be regarded (and in the event this was abundantly realized) that in different places there might be different modes of interpreting the law. So the present urban inquiry was planned on a large scale. Besides dealing with the metropolis, and including (for important purposes of comparison) some examination of places in Scotland, it extended in extra-metropolitan England to fifty of our chief centres of population. Dr. Hunter was the inspector employed upon the inquiry, and his report is subjoined *in extenso*. See App. No. 2.

Large as the inquiry was, and copious as are the resulting details of information, the broad results may be told in these very few words,—that, neither against degrees of crowding which conduce immensely to the multiplication of disease, as well as to obvious moral evils, nor against the use of dwellings which are permanently unfit for human habitation, can local authorities in towns, except to a certain extent in some privileged places, exercise any effectual control. Resulting from (or at least attributable to) this powerlessness of the authorities, which only sometimes was supplemented by strained constructions of the law, the evils in

question were found very extensively, one or both of them, in operation. Especially they were seen abounding in some of the chief places which were visited; perhaps worst in parts of the metropolis, and in Bristol, Merthyr, Newcastle, Plymouth and Sunderland. Moreover, though in various other places, including some of considerable importance, the evils were either not found existing, or not in important degrees, it must be remembered that even in these places, or in most of them, slight industrial or other local changes could rapidly and irresistibly develop high degrees of overcrowding. Adverting also to my last annual report, I may recall the fact, therein abundantly demonstrated, that even in small country towns and villages, where the evil least admits of excuse, overcrowding is often in glaring excess. And thus, speaking generally, it may be said that the evils are uncontrolled in England.

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No one, I apprehend, can doubt but that this state of things contravenes the intentions of the Legislature. For when regard is had to the enactments already made in the matter—especially to the Common Lodging Houses Acts, and to those provisions of the Nuisances Removal Act which relate to overcrowding and to dwellings unfit to be inhabited, the Legislature is seen to have decided in principle that the evils in question must not be suffered to continue. And the fact that the evils do nevertheless continue, both in wide extent and often in great intensity, constitutes an evident and urgent claim for such new legislation as will amend the present technical insufficiencies of the law.

It is scarcely possible for the better-off classes to imagine, where duty has not given them opportunities of practically knowing, what immensity of baneful influence is included in the evils to which I advert; and it may therefore be well for me to show what in practice are the forms in which the evils present themselves. By places “unfit for human habitation” I mean places in which by common consent even moderately healthy life is impossible to human dwellers,—places which therefore in themselves (independently of removable filth which may be about them) answer to the common conception of “nuisances”;—such, for instance, as those underground and other dwellings which permanently are almost or entirely dark and unventilable; and dwellings which are in such constructional partnership with public privies, or other depositories of filth, that their very sources of ventilation are essentially offensive and injurious; and dwellings which have such relations to local drainage that they are habitually soaked into by water or sewage; and so forth. But beyond these instances where the dwelling would, I think, even now be deemed by common consent “unfit for human habitation,” instances, varying in degree, are innumerable, where, in small closed courts, surrounded by high buildings, and approached by narrow and perhaps winding gangways, houses of the meanest sort stand, acre after acre of them, back to back, shut from all enjoyment of light and air, with but privies and dustbins to look upon; and surely such can only be counted “fit for human habitation” while the standard of

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that humanity is low. Again, by "overcrowded" dwellings I mean those where dwellers are in such proportion to dwelling-space that no obtainable quantity of ventilation will keep the air of the dwelling-space free from hurtfully large accumulations of animal effluvium,—cases where the dwelling-space at its best stinks more or less with decomposing human excretions, and where, at its worst, this filthy atmosphere may (and very often does) have, working and spreading within it, the taint of some contagious fever.\* And as a particular class of cases, in which both evils are combined to one monstrous form of nuisance, I ought expressly to mention certain of the so-called "tenement-houses" of the poor; especially those large but ill-circumstanced houses, once perhaps wealthily inhabited, but now pauperised, and often without a span of court-yard either front or back; where in each house perhaps a dozen or more rooms are separately let to a dozen or more families—each family with but a room to itself and perhaps lodgers; and where in each house the entire large number of occupants (which even in England may be little short of a hundred) will necessarily have the use of but a single staircase, and of a privy which perhaps is placed in the cellar.†

That such influences as the above must be enormously fatal to health is, in the present state of knowledge, too obvious to need formal demonstration. When first, seventeen years ago, it devolved upon me (then officer of health for the city of London) to draw attention to the sanitary circumstances of great masses of metropolitan population, I showed, in regard of my then sphere of observation, that those evils were sufficient in their gigantic magnitude to neutralise whatever in other respects was being attempted for the improvement of health.‡ And now I am confident that I speak the sense of all who have had most to do with the administration of sanitary measures or poor law medical relief, when I affirm generally what was then but of partial application, and say that to provide for the public health in important centres of population must of necessity be a hopeless task, unless the administering authority be armed with ample powers to render impossible those conditions of lodgment which are of so deadly

\* Though my official point of view is one exclusively physical, common humanity requires that the other aspect of this evil should not be ignored. For where "overcrowding" exists in its sanitary sense, almost always it exists even more perniciously in certain moral senses. In its higher degrees it almost necessarily involves such negation of all delicacy, such unclean confusion of bodies and bodily functions, such mutual exposure of animal and sexual nakednesses, as is rather bestial than human. To be subject to these influences is a degradation which must become deeper and deeper for those on whom it continues to work. To children who are born under its curse it must often be a very baptism into infamy. And beyond all measure hopeless is the wish that persons thus circumstanced should ever in other respects aspire to that atmosphere of civilization which has its essence in physical and moral cleanliness, and enhances the self-respect which it betokens. See also remarks on crowding in rural dwellings, in last Report, p. 13.

† Mere scantiness of privy-accommodation leads, of course, to filthy habits among the lodgers of crowded tenement-houses. And when the pretended accommodation is given in the above-described form, often in utter darkness, the likelihood is that the basement of the house will be one indescribable quagmire of filth.

‡ See First and Second Annual Reports, relating to the sanitary condition of the city of London, 1849 and 1850. Reprinted (Longman) 1854.



effect upon the poor. Not only Dr. Hunter's present report, written specially on the subject, but other of our departmental reports,\* and, in addition to them, masses of independent evidence set before the public by persons officially or unofficially interested in sanitary improvement,† may be referred to for details in justification of that statement. And in Dr. Hunter's report will be found illustrated all those ambiguities or insufficiencies of law through which the evils in question are maintained.

The powers which, in the interests of our labouring population, it is most of all desirable that local authorities should be able and willing to exercise against the evils in question, are, in my opinion, these:—

- i. to deal universally with overcrowding on the basis of its being technically a "nuisance," and to take, as the sole test of overcrowding, the proportion borne by number of occupants to size and ventilation of given space;‡
- ii. to apply to the so-called "tenement-houses" § of the poor

\* See, for instance, in the Appendix to my Sixth Report (p. 781), the description which Dr. Stevens gives of the town of Cockermouth, and (p. 785) that which Dr. Bristowe gives of Whitehaven, as regards the dwellings of the labouring classes; also, in the Appendix to my Seventh Report (pp. 476-480) Dr. Buchanan's statements as to the construction and overcrowding of the homes of the poor in Liverpool. Dr. Hunter's report in the same volume (on the house accommodation of rural labourers) gives, in relation to smaller places, innumerable pictures of overcrowding, and of such styles of dwelling as are only borne in despair of better. See also in Seventh Report, Appendix, p. 515, Dr. Stevens's account of the colliery settlements at Gilesgate Moor. And in the present volume (App. No. 4, pp. 212-4) Dr. Buchanan on fever at Greenock.

† I may particularly refer to the testimony of medical officers of health, especially those acting for the metropolis and Liverpool and Glasgow, and to Mr. Rendle's very impressive pamphlet (1865) on London Vestries and their sanitary work, and to the letters which have from time to time, within the last year or two, been written to the "Times" by Dr. Jeaffreson, Resident Physician of the London Fever Hospital, on the sources and distribution of typhus in the metropolis.

‡ I think it practically important that in the letter of the law no distinction should be drawn whether overcrowders are of one family or more. Otherwise technical difficulties become insuperable. For what is a "family"? In one sense it means "children with their parents," but in another sense it may be extended to an entire clan. It may fairly be left open to magistrates (as a matter for discretion according to local and particular circumstances) to refrain from ordering the abatement of a given overcrowding if they see that it is of one family, and could not be abated without hardship. Further, in my opinion, it is to be desired that laws and regulations as to overcrowding should not proceed on the assumption that children (to any measurable extent) require less breathing-space than adults. Against any such assumption two facts have to be considered;—first, that even healthy children, in proportion to their respective bodily weights, are about twice as powerful as adults in deteriorating the air which they breathe; secondly, that the children will almost invariably have certain eruptive and other febrile disorders to pass through, from which adult life is comparatively exempt, and in which the requirement of space is greatly increased. And having regard to these two considerations, I think it best that children and adults should be deemed to require equal allowances of air and ventilation.

§ How to define the above-mentioned class of houses is a question which, perhaps, ought to be noticed. "Tenement-house" is an expression applied to certain houses in respect of their being let or occupied in two or more "tenements." The term, if it were not expressly limited, would include all houses in which "flats" and other "chambers" are let. If it were thought well, in any such provisions as I suggest, expressly to exempt houses of the richer sort (where of course the restrictions in question are not practically needed) this might easily be done by exempting all tenement-houses wherein tenements are separately rated, or wherein no tenement is let at a lower rent than (say) six shillings per week. Practically the "tenement-

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a system of registration and regulation akin to that which is applied to common lodging houses under the statutes of 1851 and 1853;\*

iii. to enforce everywhere against the use of cellar-dwellings the restrictions which, under the 67th section of the Public Health Act, 1848, are enforceable in places which are under that Act and the Local Government Act;

iv. to exercise against premises or parts of premises which by want of access of light or air, or by dampness or through ruinous condition, are rendered unfit for human habitation, the same powers as against premises which by "nuisances" are rendered unfit;†

v. to acquire premises, by compulsory sale, either in order to make needful openings and clearings where ground is too closely built upon, or for other sanitary improvements.

Exercising compulsory powers like the above, and therewith, so far as circumstances require, such powers as the Labouring Classes Dwellings Bill now before Parliament proposes to confer for the construction of new habitations, local authorities would in

houses of the poor," so far as it is my object to provide for their registration and regulation, may be regarded as houses of the worst quality, in the worst localities, and with the worst provisions for cleanliness, occupied dividedly by as many, or nearly as many, families as they have rooms; so that each room, or, in rarer cases, each pair of rooms, is a family-holding, into which sometimes lodgers are received.

\* For the success of such a system as is proposed, powers which could not be dispensed with are these:—power to prevent the occupation of a house in several holdings, so long as its privy-accommodation and other means and appliances of cleanliness, and the ventilation and lighting of its common staircases and passages, are not such as to fit it for that kind of occupation:—power to fix for a house, according to its size, situation, construction, and conveniences, the number of holdings which may be separately let or occupied in the house, and the number of persons who may be received into any given holding:—power to require the same cleansings and linewhittings as are appointed for common lodging houses by the 13th section of the Act of 1851. Power, such as is given in regard of common lodging houses by the 7th section of the Act of 1853, to remove, in certain cases, persons who have fever or other infectious or contagious disease, is one which in the present state and circumstances of tenement-occupation, is often most urgently required. But if the preceding powers were duly exercised, this would be comparatively superfluous, and for obvious reasons only extreme circumstances could justify its exercise where the interference would be with purely domestic relations. The same remarks apply to the power (not given by the Lodging Houses Acts, but given, for instance, as regards the city of London, by the 90th section of the City Sewers Act) to cause in certain cases the removal of dead bodies from within houses. Of course in the case of tenement-houses provision would not have to be made for such reports as are ordered by section 8 of the Common Lodgings Act of 1853, nor for "separation of the sexes" in the sense of the statute of 1851. If it were deemed necessary to limit the power which I have named second in my list, a reasonable limitation of it would, I think, be this;—that every holding which has adequate provision for ventilation, and is not in a closed court, nor closely surrounded by buildings higher than itself, nor one of more than three holdings in the same house, should be deemed of size sufficient for its occupation, if its interior space (exclusive of lobbies, cupboards, and the like) affords to each man, woman, and child occupying it an average of 500 cubic feet per head; and that in no case the authority should be entitled to require a larger allowance as aforesaid than 1,900 cubic feet per head.

† At present in respect of premises where "nuisances" exist—i.e., nuisances of the sorts enumerated in the 8th section of the Act of 1855, justices can, if they think it necessary, prohibit the using of the premises till the nuisance in question is removed; but there seems to be some difference of opinion whether the very serious constructional faults to which the above text refers—faults, which in their higher degrees ought absolutely to disqualify premises from being inhabited, are in the present law, technically a "nuisance."

very few years bring within conditions of decency and comfort myriads who now subsist under conditions which it is dreadful to contemplate. And as regards the accordability by the Legislature of such restrictive and compulsory powers as I have proposed, I venture to submit two arguments:—first (as I have already stated) that the objects which such legislation would tend to compass are objects for which, in principle, the Legislature has already declared itself; and, secondly, that each of the powers which I name, as powers universally to be desired, is a power already legally exercised in some part or other of the country. In the latter point of view I would particularly beg leave to refer to the improvement-powers which are exercised in Liverpool under the local Act of 1864, and in Scotland under section 161 of the Scotch Police and Improvement Act; also to the powers which, in Glasgow under the local Police Act of 1862, and especially under its sections 384–8, in the city of Dublin under the 24th section of the Dublin Improvement Acts Amendment Act, 1841, and in the city of London under the City Sewers Act, 1851, are exercised against the crowding of tenement-houses.

In concluding this section of my report, there are two more observations which I would venture to submit. In the first place, with regard to some of the worst conditions of dwelling in towns, it is scarcely possible that thorough reforms should be accomplished, unless large improvement-powers are in the hands of the local authorities, and are so exercised by them as gradually (by the requisite clearings of ground) to provide light and air for masses of population who now dwell in dark and unventilated places, or, where such clearings cannot be made, to purchase and destroy the poorer dwellings as “unfit for human habitation,” and to provide equivalent new dwelling-space in the suburbs of the town:—and I am glad to mention here two cases, where munificent beginnings of this sort are being made; Liverpool, where 100,000*l.* has been voted and is in course of being expended, for that one purpose; and Glasgow, which is now asking Parliament to sanction its spending within the next twenty years no less a sum than 1,250,000*l.* on improvement-purposes in great part similar. In the second place, I would advert to the uncompensated dislodgment and inconvenience which the laboring classes from time to time suffer through the destruction of parts of towns required for railways and other public purposes, in which parts they have hitherto had their homes. And I would suggest for consideration whether, when compulsory powers of purchase are being sought of Parliament for purposes of the above description, it would not be desirable that the local authority which is exercising improvement-powers on behalf of the laboring classes (and also perhaps individuals, interested as employers of many hands, or otherwise, in the well-doing of work-people) should have a *locus standi* for opposing the grant of such powers, except on condition that where many habitations are destroyed at least as many should be substituted for them. On this subject I beg leave to quote, as of the highest authority which special legal

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experience in such questions can give, an expression of opinion with which I have been favored by Mr. John Bullar:—"It has been objected that it is foreign from the objects of (for instance) a railway company to make them house speculators, and force them to lock up part of their capital in dwellings for the laboring classes; but this objection is altogether futile. Where it suits the interests of the shareholders, a railway company may add to their railway a canal, a dock, a harbour, a toll-bridge, a toll-road, or an hotel; and railway companies not only may, but in countless cases must, expend capital in making, and income in maintaining, for the landowners whose lands they touch, roads, sewers, drains, level crossings, bridges, cattle-creeps, watering-places, fences, and sometimes capital in providing farm buildings. The Lands and Railways Clauses Acts provide that ample compensation in money or works or both shall be made to landowners whose interests are interfered with, but do not make adequate provision for protecting the poor, whose means of living may be seriously lessened by the exercise of the powers of those Acts. There is nothing inconsistent with the course of legislation for public works that their undertakers should build as many houses as they pull down, just as they make a new piece of road where they block up the old road; and there is no reason why they should not sell their houses as soon as they think fit. The Lands Clauses Act requires them to sell within ten years after the completion of their works. If they lose by the sale the amount of the loss is the amount of the compensation unproductive to themselves which they make to the poor whom they dispossess; but with ordinary prudence they often may so arrange their building and selling operations as, if not to give them a profit, at least to make their loss a most insignificant part of their total outlay."

Effect of sani-  
tary improve-  
ments.

2. A second large inquiry which my Lords undertook in 1865, but which could not within the year be completed, related to places in which, for some considerable number of years, proper works of drainage and water-supply have been established, or particular sanitary regulations been in force, and aimed at ascertaining, by local inquiries and examination of mortuary returns, what has been the *effect of the works or regulations in improving health* in each respective place.

Dr. Buchanan is the inspector who has been employed on this inquiry. The places in which hitherto his investigations have been made—certain places, namely, in which the Public Health Act had been long adopted, and sanitary works under it had been constructed, are as follows:—Salisbury, Macclesfield, Croydon, Alnwick, Penrith, Morpeth, Ely, Ashby-de-la-Zouch, Carlisle, Leicester, Rugby, Stratford-on-Avon, Banbury, Warwick. His reports on these places have reached me too late to admit of their being included in the present volume. Both on this account, and also because the inquiry is being extended to other places, I think it best now to refrain from putting forward the conclusions which hitherto seem probable results of the

inquiry. But I hope that in my next report I shall be able to present all the evidence which this inquiry aims at collecting, and at the same time to state conclusions which may be permanently valid (and I believe will be highly interesting) as to the practical fruit of our best-tested sanitary improvements.

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3. With a view to obtain, if possible, more exact knowledge than was hitherto existing as to one particular alleged cause of disease—the *alleged occasional conveyance*, namely, of *morbid contagia in the various stuffs which form the staple of the rag-trade*, I, under their Lordships orders, instructed Dr. Bristowe to make detailed inquiry in quarters where affirmative evidence, if producible, would most readily be found, and especially in great paper-making establishments, as to any known facts which might seem to justify the suspicion referred to.

Question of  
injury from  
infected rags.

Dr. Bristowe, after visiting many establishments in London of rag merchants and marine storedealers, and 86 paper mills, scattered in various counties of England, gave me the report which I append, No. 3.

It is matter for congratulation that the results there recorded are almost entirely negative, and such, I think, as fully to establish that the rag-trade does not play any considerable part in the distribution of contagions of disease. More than this cannot, I apprehend, be maintained. When regard is had, on the one hand, to the sources of rag-supply, and on the other hand to the known properties of certain contagia, no one can suppose that paper-mills do not sometimes receive rags with infective material among them; and it would not have surprised me, if cases more or less authentic had been reported, where not only smallpox and other fevers, but also syphilitic inoculations, had, on particular occasions, been ascribed to the agency of foul rags. It will be observed, however, that, except in regard of smallpox, no such accusations came under the inspector's notice; and the instances wherein it was with some show of probability alleged that smallpox had been introduced by rags cannot be deemed to represent, in a vaccinated country, any serious amount of public danger.

I have already elsewhere submitted my opinion (and must hereafter return to the point) that the Nuisances Removal law of the country requires to be strengthened by provisions, which may be summarily used, against such sorts of personal conduct as tend unnecessarily to spread dangerous infections of disease.\* It seems to me that if provisions with that object are to exist, the offence of knowingly contributing to circulate rags which have been imbued with infectious material would almost of course fall within their scope. And, so far as present information extends, nothing further than that could be desired in the way of legislative precaution against the danger.

\* See last section of Letter in Appendix No. 9. See also last section of Report.

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researches.

4. It remains to be mentioned under the present head that, in aid of the more immediately practical objects of the department, my Lords, early in 1865, ordered certain *scientific researches* to be begun. Inquiries already made and reported on had set before the Legislature and the public much information, collected according to the current lights of medical science, with regard to the distribution and causes of all our most destructive diseases. The relations of typhoid fever and other diarrhœal infections to the presence and decomposition of excremental impurity in air and water,—the relation of the most fatal afflictions of artisan life to mere want of common ventilation, or of dust-withdrawing ventilation, in places of industry,—the relation, similarly, of miners' lung-diseases to the insufficient ventilation of mines,—the relation of our highest infantine death-rates to that neglect of infants, too often an almost murderous neglect, which follows the extensive industrial employment of women, whether in factories or in gang-agriculture,—the relations of unconquered smallpox to ill-performed vaccination, and of this to demonstrable faults of local arrangement,—the relations of contagion to the spread of disease in different circumstances of life, and of overcrowding to the power of contagion,—these very important aetiological relations had been studied, in their broadest bearings, in a large number and variety of local inspections throughout England, as well as in elaborate mortuary statistics; and the results of the study had been laid before Parliament, with other sanitary information, in the successive annual reports of the department. My Lords had now to determine what was to be done in the way of further like proceedings. It was submitted to them that by renewed inquiries, of exactly the same kind as heretofore, they might extend, but perhaps not importantly strengthen for practical purposes, the evidence already elicited on the great subjects which had been in hand; and that inquiries, tending chiefly to produce repetitions of evidence, would be but of secondary interest. Also it was submitted that, in the establishment of new principles for the prevention of disease, great steps of progress were now not likely to be made otherwise than with improved methods of aetiological observation;—that scientific researches must first have created a far more intimate knowledge than is yet current as to the nature of the morbid processes which are to be prevented, and as to the physical and chemical conditions of their development;—that such researches, on the scale and system which were to be desired, were not likely to be undertaken here by private investigators;—that, if their Lordships' inquiries were to continue to give fruit of national interest and importance, collateral work, aiming at such knowledge as I have just spoken of, must be combined with their Lordships' former line of inquiry, and serve hereafter in some sort as its pioneer.\*

\* In relation to one very important disease, opinions like the above had, ten years previously, been pressed upon the attention of Government by the Medical Council, which the President of the then General Board of Health had called together to



My Lords having instructed me to act in accordance with these views, investigations of the kind in question became in 1865 part of the work of the department. Hitherto they have had relation only to the chemical processes of disease, and here, under their Lordships' authority, I have had the advantage of Dr. Thudichum's assistance. At present I have only to name these investigations as of the category of work in progress. On future occasions I shall hope to particularise the proceedings, so far as their very technical subject-matter will permit, and of course from time to time to give their practical results. It may be, however, that these will not so much admit of popular appreciation as they will conduce to urgent professional requirements. The work is not of the kind which can promise either immediate returns, or such returns as are most popularly striking. But that medicine in its most practical aspects, whether preventive or curative, needs constant aid and guidance from purely scientific researches, is a fact on which it would be superfluous to insist. Of the convictions which in this respect are universal among enlightened persons, perhaps no stronger illustration could be cited than the urgency, almost the clamour, with which such researches were recently called for in relation to the steppe-murrain now in England, and the scale on which the Royal Cattle-Plague Commission ordered them. Also in another point of view I may refer to those researches for an illustration. Undertaken as they were in the medical interests of horned cattle, they yet elucidated some processes of disease in a way which is of interest to human pathology, and, through it, to the preventive medicine of mankind.\*

### B. *Occasional Proceedings.*

Besides inquiries systematically contributed as aforesaid to elucidate the common sanitary state and circumstances of the country, miscellaneous inquiries, which of course have tended to increase knowledge in the same direction, were made on many particular occasions, and generally at the instigation of local applicants, either with reference to actual excesses of disease, or with reference to conditions of filth from which such excesses might result. On occasions of the one sort or the other, my Lords, during 1865, ordered that inspectors should visit the following places:—*Greenock* and *Bristol*, where in both instances typhus was epidemic, and the local authorities requested my Lords to assist them by inquiry and advice; *Maidenhead*, where there

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advise him on the then prevailing epidemic of Asiatic Cholera. See Report of Medical Council, p. 8, and Report of the Council's Committee for Scientific Inquiries, pp. 65-6, among papers of General Board of Health laid before Parliament with reference to the Cholera-Epidemic of 1853-4. But cholera is only one of innumerable illustrations which might be adduced of our present practical stand-still for want of deeper scientific insight.

\* I refer particularly to the researches of Dr. Sanderson (reported in the Appendix to the Third Report of the Royal Cattle Plague Commission) on the propagability and incubation of cattle-plague, and on the physical state of its contagium.

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was a very unusual concurrence of deaths by puerperal fever; *Great Ormesby* and *Waltham Abbey*, where there had been outbreaks of diphtheria; *Wellington* and *Aston Clinton*, where scarlatina had caused anxiety; *Harting* and *Hadlow*, where there had been typhoid fever; *Southampton* and *Epping*, where cases of Asiatic cholera had shown themselves, and, in connexion with the inspection of *Epping*, *Leytonstone*, where a drainage-nuisance was much complained of; *Swansea*, where cases of yellow fever had occurred; *Chichester*, *Leeds* and *Harwich*, where question had arisen as to the sufficiency of action taken by the local authorities for the protection of the public health. In *Woolwich*, where fever had been epidemic, an inquiry which had been begun in 1864, and which therefore my last Report mentioned as in progress at the end of the year, was completed. And besides the above cases, where local inspections were made, my Lords, on other occasions of local complaint or alarm, had written communication with the authorities of these other places, viz.:—*Newton* in the Chesterton Union, *Deptford*, *Paddington*, *St. Pancras*, *Farnham*, *Horfield* in the Clifton Union, *Debenham* in the Bosmere and Claydon Union, *Waltham Abbey*, *Bethnal Green*, *Colney Hatch*, *Camberwell*, *Shirley*, *Whitstable*, *Bury*, *Golborne* in the Leigh Union, *Wistanstow* in the Church Stretton Union, *Silver Hill* in the Hastings Union, *Birling*, *Aylesford*, *Brundall* and *Bradestone* in the Blofield Union, *Watlington* in the Henley Union, *Standon* in the Ware Union, *Maidenhead*, *Ramsey* in the Huntingdon Union, *Child's Hill* in the Hendon Union, *Otley*, *New Shoreham*, *Burton-on-Trent*, *Headcorn* in the Hollingbourne Union, *Tottenham*, *Twickenham*, *Maidstone*, *Basingstoke*, *Enfield*, *South Shields*, *Wing*, *Kensington*, *Clapton*, *Hounslow*, *Cleator*.

Concerning the cases where inspections were made, excepting those of *Bristol*, *Wellington*, and *Woolwich*, I subjoin either the reports or extracts from the reports which I received from the inspecting officers.\* (See App. Nos. 4-8 and 14-16.) To the cases of *Southampton*, *Epping*, and *Swansea*, I shall refer in later sections of this report. To the case of *Maidenhead* I need not further advert than to say that the mortality which had occurred in that town was, in my opinion, sufficiently accounted for by the facts of obstetrical practice which the inspector (Mr. Radcliffe) sets forth in his report. Except as regards these cases, the main interest of the papers which I append consists in their bearing on the question which was discussed in my last year's report—the very important question of the working of the Nuisances Removal Acts in England. The report on *Greenock* is of course not relevant to that question, but is valuable here for the more general purpose of showing to what monstrous degrees of overcrowding and filth, and to what consequent sufferings by disease, a popula-

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\* At Bristol there was insufficient hospital-accommodation for the poor with typhus, and the chief object of the inspection was to see to means for increasing the accommodation. At Wellington no question of much practical interest was raised. Regarding Woolwich, further inquiry did not add anything important to the information given in my last annual report.

tion (even when its industrial circumstances are prosperous) may be brought by the unregulated use of tenement-houses. The remaining cases may be regarded as supplementary illustrations of the argument of my last year's report on the inefficiency of our Nuisances Removal law:—*Aston Clinton*, with the pestiferous crowding of its children in plaiting schools,—*Great Ormesby*, with its structural nuisances,—*Waltham Abbey*, with its sewage-ditch continuing, in spite of remonstrances, under jurisdiction of a local board of health,—*Hadlow*, with its cesspools and stinking drains,—*Harting* (in the often complained of Midhurst Union) with its drinking-water almost ostentatiously polluted by excrement, and filth piled up as though it were treasure,—*Harwich*, with no useful memory of its former sufferings by cholera, but still cesspooled to the worst degree, and still with the worst of water-supplies,—*Chichester*, an episcopal city, a municipal and parliamentary borough, where still the inhabitants drink from beside their cesspools, and endure once a fortnight the almost unique nuisance of a very large cattle market in their streets,—and *Leeds*, with such an administration of the Nuisances Removal Act as, in proportion to the importance of the town, may perhaps be deemed the worst which has come to the knowledge of this department.\*

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In order to do full justice to these cases in their illustrative relation to the efficiency of the Nuisances Removal Acts, it is requisite to remember that the year 1865, with its incessant alarms and public and private manifestos as to the approach of epidemic disease, was eminently a year when it might have been expected that the authorities would not be sleeping at their posts. Yet, adverting also to the evidence which was given on these matters in my last annual report, I cannot doubt but that the few above-mentioned instances represent innumerable others, now existing far and wide throughout the country.

As regards the correspondence which my Lords had during the year, on questions generally of the same nature as the above, I need only observe that the complaints which were addressed to their Lordships tallied with and corroborated the opinion which I have expressed as to the frequent inoperativeness of our present sanitary laws, and that my Lords were unable to suggest remedies to persons who addressed them on this subject.

One case, however, deserves particular mention. From the respective vicars of Aylesford and Birling, two parishes in the *Malling Union*, my Lords in September last received complaints that the board of guardians refused to act in execution of the law, as authority for the removal of nuisances; the first complainant adding that a case of cholera (fatal after seven hours' illness) had just occurred in his parish; and the second, that, in a hamlet in his parish, always more or less marked by illness, where the

\* I am glad to state, as the sequel of the communications which my Lords have addressed to the town council of Leeds on the sanitary state of the town, that for some time past considerable exertions have been making there to amend the state of things described in Dr. Hunter's report.



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people had open cesspools about their houses, and were drinking polluted water, fever was spreading fast from house to house. In answer to a letter which my Lords hereupon immediately (Sept. 14) ordered to be addressed to the board of guardians, inquiring on the subject, the clerk on the 27th September wrote that the guardians had directed a special meeting to be called for that day fortnight to take their Lordships' letter into consideration; and on the 11th October he wrote—"that at a special meeting held this day to take into consideration the Nuisances Removal Acts, it was moved that it was inexpedient to adopt those Acts, whereupon an amendment was proposed that they be adopted, and negatived by a majority of six to five." On receipt of this answer, my Lords directed a second letter to be written (Oct. 12) requesting to be informed of the precise meaning of this resolution, inasmuch as the Acts were general and did not require to be specially adopted, and asking particularly whether the guardians declined to receive complaints and to take proceedings under the Acts. To this second letter the guardians, on the 18th October, replied, "that they considered the resolution passed at the meeting to be a sufficient expression of their meaning, which was, that they did not consider the 5th section of 23 and 24 Vict. c. 77. to be imperative, and they therefore declined to appoint a committee under that section." While this reply was still under their Lordships' consideration, one of the complainants wrote that, in some uncertainty whether their former applications to the board of guardians had been in all respects strictly in order, and in hope that the decision of the former meeting of the board might be reversed by another and larger meeting, they had decided to recommence their endeavours to move the board. Again, delay was interposed by a fortnight's adjournment of the board, and it was not till the 18th November that my Lords received the following information from the vicar of Birling: "The board of guardians has not thought fit to make any reply to the memorial from this parish or to my own letter (both dated 28th ultimo) but I am informed by the elected guardian of this parish the matter of the nuisances in Aylesford, Birling, and Snodland parishes was pressed at the adjourned meeting on the 15th instant, when the adoption of the Nuisances Acts was strongly advocated by E. L. Betts, Esq., and others, but as strongly opposed by the chairman, whose statements of the operation of the law at last secured a majority of one against the adoption of the Acts." A letter to the same effect was received from the other complainant; and on the 21st my Lords received from the rector of Snodland, a third parish in the union, complaints that nuisances existed also there to an alarming extent, that typhus and diphtheria abounded, and that by the decision of the Malling board the inhabitants were left without any local authority to whom to apply. My Lords now brought the correspondence under the consideration of Secretary Sir George Grey; who referred it to the Attorney and Solicitor General for

their opinion, whether, under the circumstances represented, proceedings should be instituted against the guardians of the Malling union, with a view to compel them to take such measures as were necessary for the protection of the public health. On the 28th December the answer of the law-officers was reported, to the effect that, in their opinion, there was not legal ground for the institution of proceedings against the guardians. The case requires no comment from me, but I beg leave to add the remarks with which the law-officers concluded the expression of their opinion:—"It is evident that the legislature has hitherto thought it sufficient to rely mainly on the vigilance and discretion of the local authorities, without providing against any perverseness or voluntary neglect on their part; and the present case seems to show that in some districts, at all events, further security is required for the public good."

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### III.—FOREIGN EPIDEMICS OF THE YEAR, AND THE GENERAL QUESTION OF CONTAGION IN ITS BEARINGS ON THE PUBLIC HEALTH.

III. Foreign  
Epidemics and  
Quarantine.

In relation to the spread of pestilential disorders, the year 1865 was of extraordinary and most painful interest. That in this year, after more than a century's interval, the herds of England were revisited by the most malignant of bovine plagues—the, to them, unfamiliar murrain of the Russian Steppes, would in itself be a sad distinction of the year. But the eventfulness of 1865 was even less in that field of suffering than in relation to human epidemics, and, in the latter respect, to persons who had to care for the public health, the last nine months of the year were a time of continuous anxiety. First, early in April, it was rumoured that a disease of the nature of *Plague*, coming from beyond the Ural Mountains, and causing depopulation in its course, had not only reached St. Petersburg, where it was said to be causing fearful ravages, but had spread beyond the Prussian frontier, and was prevailing, though in a less destructive form, at Dantzic and various other places in North Germany. Next, in June, came the importation of *Asiatic Cholera* into Egypt, and thereupon, radiating from Alexandria, for results which as yet have but begun, the renewed influence of this terrible infection in Europe. Thirdly, in September, there was the fact (hitherto, I believe, unparalleled in the epidemiological experience of this country) that an outbreak of *Yellow Fever*, fortunately not on a large scale, was occasioned to the population of Swansea by the arrival of an infected ship from Cuba.

It was but to a very limited extent that these important occurrences involved proceedings which technically were under the Public Health Act, 1858; and, strictly speaking, proceedings under that Act are all that I am called upon to mention here. I may, however, so far exceed that limit as to include certain other proceedings which the same occurrences involved, and which were of general sanitary interest,—proceedings of the Lords of the

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1. "Siberian  
Plague."

Council, which were either taken under the Quarantine Act, or at least had regard to its administration.

1. The first of the occurrences to which I have adverted, the rumour in April last that a "Siberian plague" was advancing towards this country, was one which, except for the proverbial faculty of rumour to distort as well as magnify what it represents, might have justified the greatest alarm.\* And it was of course one which tended to raise a question of quarantine. Under the circumstances, my Lords thought it expedient that the facts should be investigated from this department, and, at their desire, I took the requisite steps for that purpose. Dr. Whitley was sent to St. Petersburg, and Dr. Sanderson to the country of the lower Vistula. The results of these investigations are contained in papers which I subjoin—App. Nos. 9, 10, 11; viz., a report which I addressed to the Lord President on the 19th. April, and reports subsequently made by the two inspectors. Briefly, I may here state that the rumour which gave rise to the inquiry had joined together and disfigured two mutually independent truths; one, that our well-known typhus and relapsing fevers were epidemic in St. Petersburg; † the other, that cerebro-spinal meningitis—a peculiar nervous fever, hitherto scarcely known in England, was epidemic in parts of North Germany.

It is only with respect to the latter disease that I need here make any further statement. From communications which have been made to me since the time when the inspectors reported, and particularly from information for which I am indebted to Dr. F. J. Brown, of Rochester, and to Dr. Clapton, one of my colleagues at St. Thomas's Hospital, I have reason to believe that for some time past the disease has been present in small amount in this country. I subjoin (App. No. 12) the substance of the communications with which Dr. Brown and Dr. Clapton have favoured me. It is, in my opinion, unquestionable that some of the cases illustrate in sporadic form the same cerebro-spinal meningitis which in other countries has prevailed epidemically. And to this I may add two considerations. First, the morbid influence may perhaps to some extent show itself otherwise than in marked cases of idiopathic cerebro-spinal meningitis:—experience of

\* Terrible inflictions have before now come to us by that line of transit, and cholera is not the only pestilence which has thus come. Apparently it was through Russia, and perhaps as a "Siberian plague," that, five centuries ago, the Black Death came to England. That, according to the best authorities, the Black Death, under the name of Pali Plague, still lives, and from time to time spreads, in the western and northern parts of India, and, when last told of, was even high in the Himalaya; that, if its infection passed the hills, little story would come to us of how it filtered through the sands of nomad and other savage life; but that presently it might be on the confines of Russia, and then again suddenly of the gravest European interest;—these are considerations which, in the minds of persons who know the facts of the case, would check all disposition to treat rumours of "Siberian Plague" with indifference.

† It may be worth noting, that among the very various information which reached me from Russia about the time when the above proceedings were in progress, I found, as one element of confusion in the popular impression of the case, that a carbuncular disease of cattle, which was prevailing in parts of Russia, and which, according to a well-known property of such diseases, had in some cases led to infection of human beings, was being spoken of as "Siberian Plague."



parallel circumstances suggesting as possible, that the mysterious "epidemic constitution" (as Sydenham would have called it) which favours the specific nervous fever in a given time and place, may also, to some extent, colour other diseases of the time and place with nervous, particularly tetanic or tetanoid, complications, and that an increased tendency to such complications may suffice to show the "epidemic constitution:" and both Dr. Brown and Dr. Clapton in their respective fields of observation are struck with evidence that of late this or something like it has been the fact. Secondly, it has to be remembered that till a disease is generally known to the medical profession, and is known by a distinctive name, solitary cases of it are easily confounded, either in fact or in name, with other more familiar diseases: that probably cerebro-spinal meningitis will thus to some extent be confounded with lock-jaw and hydrocephalus, just as diphtheria ten years ago (when the present generation began to make their first practical acquaintance with it) was confounded, either in fact or in name, with various better known throat-affections and with scarlatina.

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2. The choleraic infection of Egypt in May last, with the return of Mohammedan pilgrims from Mecca where the disease was epidemic; followed soon afterwards by the spread of the same infection, along each of the several lines of steamboat communication which diverge from Alexandria as a centre, to all the most considerable ports of the Levant and of Southern Europe; whence again in many instances inland spreadings of the disease took place;—this constituted a succession of events which augured badly for the public health in England. And presently, in the quarter where it was being looked for, a first wave of the infection had touched our shores, though happily not yet greatly to harm us. For the first time in our experience of cholera, the attack was on our south coast: not as on former occasions on our ports which look toward the Baltic: but on Southampton, distinguished among all our ports as the one of quickest Mediterranean traffic, and perhaps also (though this may have been secondarily) on Weymouth or Portland or Dorchester.

2. Asiatic  
Cholera again  
in Europe.

Of the epidemic progress which I have just summarily sketched, I do not attempt here to give the innumerable and somewhat intricate details, nor to compare the present course of the disease with steps of former visitations. On that subject, under their Lordships' orders, I requested Mr. Radcliffe, honorary secretary of the Epidemiological Society, to compile a special report; and, for the purpose, I put into his hands all the abundant information which the Foreign Office had communicated to their Lordships. The elaborate report with which he has recently furnished me, and which I append *in extenso*, gives all information which has hitherto been obtained as to the epidemic progress, compares the present with former invasions, and gives some interesting supplementary information as to the Mohammedan pilgrimages, in their relation to the present subject. See App. No. 13.

Of the very small share which England has yet had in the

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epidemic, the main facts are these. Into Southampton there came on July 10th, and at intervals afterwards, very suspicious arrivals from Alexandria, Malta, and Gibraltar. In the middle of August, a young woman in the town had a choleraic attack of doubtful nature; on the 22d September a labourer had undoubted Asiatic cholera, of which afterwards he died; and from then, for about six weeks, cholera-cases continued to occur in small numbers in and about Southampton, so that on the 4th November (when the little epidemic might be considered at an end) there had been in all 60 such cases, of which 35 had terminated in death.

It is a question whether from Southampton, or in any more direct way, the morbid influence may in August or September have reached Weymouth or Portland or Dorchester: I have no proof that any such infection took place: but accidentally I am informed that a gentleman from a distance who early in August was spending a week in Weymouth, and visiting both Portland and Dorchester, contracted during that week a diarrhœa which on his return home developed to severe cholera; and in September there occurred, in the neighbourhood of London, the following events, which give peculiar interest to the question. Mr. G. and his wife, inhabitants of Theydon-Bois near Epping, had been lodging at Weymouth for seventeen days from the 8th September, had visited Portland on the 22d, and Dorchester on the 23d, and returned home on the 25th. On the evening of the 23d Mr. G. had been seized with diarrhœa, sickness and cramps, which continued more or less through the next day, and left him still unwell on the morning of the 25th. He, however, performed his journey to Epping with his wife. She, during the journey, began also to complain of abdominal discomfort; and this, after her return, developed, with gradually increasing diarrhœa, to cholera, of which (in its secondary fever) she eventually died on the 11th October. On the 30th September (while the last-named patient was still in collapse) one of her daughters, aged eight, was seized with cholera, and in a few hours died. That same night, a serving-lad in the house was seized with cholera, and barely escaped with his life. On the 2d October, the doctor who was attending them died of cholera, after ten hours' illness. On the 3d, another daughter of the house, aged 16, passed into cholera, but eventually, after some consecutive fever, recovered. On the 5th, a maid-servant got diarrhœa, which, though relieved for the time, relapsed and became choleraic on the 8th, and she, after some promise of recovery, fell into secondary fever, with which she eventually died. On the 5th also a labourer who worked on the premises, but lived apart, was taken with diarrhœa, which, passing on to cholera and collapse, killed him next day but one. On the 6th, the head of the house, the Mr. G. who had suffered at Weymouth, and had ever since had relaxed bowels, got a very acute new attack, and died after 15 hours. On the same day his son was attacked with diarrhœa, and next day was in collapse, but rallied, and finally got well. Also on the 6th, the grandmother of the house was similarly attacked; and

she, though she emerged from collapse, eventually died on the 14th. On the 10th a woman, living near by, whose only known connexion with the above cases was that on the 8th she had assisted in laying out the dead body of the above-mentioned labourer, was taken with choleraic purging, which soon led to collapse, and next day to death. Thus, within a fortnight, in that one little circle, eleven persons had been attacked with cholera,—mother, father, grandmother, two daughters, son, doctor, serving-lad, servant-maid, labourer, and country-woman; and, of these eleven, only three survived—the son, a daughter, and the serving-lad. Later, in the country-woman's family, there was another fatal case. It cannot well be doubted but that the exciting cause of this succession of events was, in some way or other, the return of the parents from Weymouth—of the father with remains of choleraic diarrhoea still on him, of the mother with apparently the beginnings of the same complaint. But this is only part of the case, and the remainder teaches an impressive lesson. All drinking-water of the house came from a well beneath the floor of the scullery; and into that well there was habitual soakage from the water-closet. Whether, in intimate pathology, there are any essential differences between the cholera which kills on a large scale, and the cholera which kills single victims, is hitherto so entirely unknown, that it would be idle to discuss, as a separate question, whether the G. illness, contracted at Weymouth and carried to Epping, was “epidemic” or “sporadic,” “Asiatic” or “English,” cholera; and, as above stated, I cannot prove it to have been an offshoot of the Southampton epidemic, or otherwise of Mediterranean origin. Certain, therefore, only is this:—that, from the time when Mr. and Mrs. G. returned ailing to their home, the discharges which passed from their bowels gave an additional and peculiar taint to the already foul water-supply of their household, and that thenceforth every one who drank water in the house drank water which had in it the ferment of decomposing diarrhoeal matters.

In relation to these, on the whole, inconsiderable manifestations of epidemic cholera in England, proceedings under directions of the Lords of the Council were taken as follows. With the assistance of Dr. Parkes, Professor of Military Hygiene at Netley Hospital, I watched the progress of the epidemic at Southampton, and addressed to the local authorities such suggestions as were necessary. And as soon as information came of the lamentable occurrence at Theydon-Bois (which unfortunately was not until all the above-described mischief had been accomplished) I instructed Mr. Radcliffe to investigate the facts, and to give such advice as might be useful. Professor Parkes made peculiarly exact inquiry into all the circumstances connected with the beginnings of the epidemic in Southampton, and into the relations of the cases to one another; and I append his report *in extenso*—No. 14; not only for the positive information which it contains, but also as an useful illustration of the extreme difficulty which in all such matters there is in proving or disproving contagional relations. From Mr. Radcliffe's report I append (No. 15) the section which

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describes in detail the circumstances of the infected water-supply.

And here terminates, for the year 1865, the history of cholera in England. What may be the facts of 1866, or what eventually will have been the share of England in the present pandemic diffusion of the disease, are questions on which no materials for exact judgment exist, and where at any rate hope may be preferred to prediction.

3. Yellow fever  
at Swansea.

3. The outbreak of Yellow Fever at Swansea in September last was in one respect an event of extreme importance. That England is not insusceptible of this tropical infection, but that (at least under favouring circumstances) yellow fever can seriously damage a port-side population in England: this truth was conclusively discovered in Swansea at the cost of fully fifteen lives. Doubtless the atmospheric conditions under which the proof was given were conditions not habitual to our climate. Especially the heat was almost tropical. But no one can predict of any given year that its summer shall not reproduce the conditions which characterized the summer of 1865; nor can any one say that, if yellow fever infection should again begin to operate on our population, the mischief may not infinitely exceed those limits within which on the recent occasion it was confined. And accordingly, for the purposes of hygienic police, the outbreak to which I refer must be deemed to have given a most impressive warning.

The broad facts of the case may be told in very few words under the following two heads. First, the *Hecla* left Cuba on the 26th July with cases of yellow fever on board, had successive new cases till towards the end of August, entered Swansea harbour on the 9th September, with one of her seamen dying and two others but convalescent from the fever, and was immediately moored alongside a wharf; where she landed her sick, discharged (though not uninterruptedly) her cargo, and remained stationary till the 28th; when remonstrances, which at last had become irresistible, led to her being removed from within the dock. Secondly, from September 15, six days after her arrival, to October 4th, six days after her removal, Swansea witnessed the entirely new phenomenon of yellow fever attacking in succession some twenty inhabitants of the town, besides others who suffered less definitely, or more mildly: and this not indiscriminately over the whole large area of Swansea, but only in definite local relations to the ship: while at Llanelly there also fell sick in the same way three of the crew of a small vessel which had been lying for two days alongside the *Hecla* at Swansea.

While this mischief was in progress notice of it came to the Lords of the Council. On the 14th September, I received from the Registrar-General information which the Swansea registrar had written him to the following effect;—that he had just registered the death of a man, aged 38, as caused by “exhaustion from fever, probably yellow fever;” that “this man was landed

from a yellow fever infected ship, and died within three hours of being landed, in one of the dirtiest courts of Swansea, his death probably hastened by such removal ;” and that the case had created much excitement in the town, as several deaths occurred on board the ship after leaving Cuba, and several of the crew were affected when the ship was brought into port.” On the 26th, I received intelligence from the Registrar-General that a death by yellow fever had occurred among the population of Swansea,—viz., that a man, of whom it was stated that he had gone on board the infected vessel soon after her arrival, had died of yellow fever after five days’ illness, and that other attacks of yellow fever were reported. Hereupon, under their Lordships’ orders, and with the assistance of Dr. Buchanan, as inspector, I immediately took measures to investigate the details of the case, and to advise the local authorities on their management of the danger which had arisen. The very interesting report which Dr. Buchanan made to me at the end of the outbreak is appended in extenso. See App. No. 16. And I may refer to that report for all details, both as to the ætiological connexion of facts in the case, and also as to the circumstances under which the intentions of the Quarantine Act had been frustrated.

I have said that the outbreak which I have described was, so far as I know, unparalleled in the experience of England. Indeed, anywhere on this side of the Atlantic, yellow fever is a rare phenomenon ; and, on the few occasions when it has been epidemic in Europe, even the northmost latitude where it has been seen has been south, and almost invariably much south, of the southmost latitude of England. Five years ago, however, France was startled, as now England has been, by an outbreak of yellow fever in a latitude where the disease had never before been epidemic—namely, at St. Nazaire, at the mouth of the Loire.\* The Lords of the Council, as administrators of the Quarantine Act, had the facts of that occurrence brought before them—facts, in many respects, similar to those of our own outbreak, though the results were more complicated and more injurious. And I propose here to recount these facts ; presuming that the liabilities of England in the matter of yellow fever may for practical purposes be deemed identical with the liabilities of St. Nazaire ; and contending, therefore, that our Swansea lesson may be made additionally suggestive when studied in the light of that second instance. The story, as I got it from the official communications, was briefly this :—That about June 13 the *Anne Marie*, a wooden sailing vessel loaded with cases of sugar, left Havannah, where yellow fever was epidemic ;—that between July 2 and July 12 attacks of yellow fever occurred on board ;—that on July 25 she arrived at St. Nazaire, where,

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Yellow fever  
in 1861 at  
St. Nazaire.

\* The latitude of St. Nazaire is about  $47^{\circ} 17' N.$ , which is some  $4\frac{1}{2}$  degrees south of Swansea. The northmost place, where it had ever before been epidemic, in France is, I believe, Rochefort, about  $46^{\circ} N.$  Portsmouth in the state of New Hampshire of the United States represents, I believe, the northmost latitude at which it has ever been epidemic on the other side of the Atlantic ; the latitude, namely,  $43^{\circ} 4' N.$

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"twenty days having elapsed since the last death, and thirteen days since the last case [attack] of illness," she was admitted to free pratique;—that till the 3d of August she was being unloaded by labourers of St. Nazaire;—that many of these labourers were, on the 5th and 6th of August, attacked with yellow fever;—that previously (on the 2nd, 3rd, and 4th of August respectively) the mate of the *Anne Marie* who had remained on board, a cooper who had been "employed to repair the cases," and a stone-cutter "who had been working on the quay near to the *Anne Marie*," had been attacked with illness which, in at least the first two, was believed to be yellow fever;—that, moreover, on August 1, the *Chastan* (which now was at Indret, but previously had been at St. Nazaire lying alongside the *Anne Marie*) had had a first attack of yellow fever, and that by August 5, all the five men who formed her crew had been attacked;—that when the place of the *Chastan* beside the *Anne Marie* was taken by the *Dardanelles*, a boy in charge of the *Dardanelles* (the only person on board her) contracted yellow fever;—that the *Cormoran*, which had been taking cargo from the *Chastan* while alongside the *Anne Marie*, had, after some days, two cases of yellow fever on board;—that a steamer of the Lorient Company, having remained two days in harbour near the *Anne Marie*, had, on returning to Lorient, two of her crew attacked with yellow fever;—that two lighters from Indret, having also remained two days near the *Anne Marie*, had afterwards their crews, seven or eight in number, attacked with "a kind of half-yellow fever;"—finally, that an eighth vessel, the *Arequipa*, which had also remained for several days near the *Anne Marie*, and had on August 1 sailed for Cayenne, but been detained off the French coast by bad weather till August 5, had on August 5 a first attack of yellow fever, and had other attacks at intervals during the six or seven weeks following. It was alleged, moreover, that while the above events were in progress, certain of the patients, being on shore at St. Nazaire and its neighbourhood, communicated yellow fever to two or three, and slighter illness of the same kind to some others, of the persons who were about them; but, without going here into any minute discussion of these cases, I may state, as the conclusion to which a careful study of the official papers led me, that, in my opinion, it was only in a very qualified sense, if at all, that communication of yellow fever by means of personal intercourse could be said to be proven by the cases.\* The total mischief done by the out-

\* "In one very important case (that of M. Chaillon) the sufferer is said not to have been near the ship, but to have contracted the infection from certain labourers who came infected from the ship, and whom he attended medically ['frictioned'] at their homes. In a second case, one of the ship labourers, who himself had yellow fever, is said to have carried the infection certainly to his wife, and perhaps to an old man in whose house he and his wife lodged; for these two had attacks of yellow fever, the old man fatally; and though it was 'not known as a certainty' by M. Mélier that the old man had not been near the ship, it seems agreed that the woman had not been there. [H.M. Consul, Sir A. Perrier, eventually found reason to believe that both these persons had been exposed to chances of direct infection from the ship.]



break was set down at 44 cases of yellow fever, resulting in 26 deaths from the disease. It was stated that, at the time when the *Anne Marie* arrived in port, there was no other vestige of yellow fever at St. Nazaire, or in its neighbourhood; that neither yellow fever nor anything like it had ever before existed in the district; and that no other yellow fever was seen in that summer on this side of the Atlantic. The description given of St. Nazaire was this:—"the town is partly built on the strand, and is tolerably healthy; its vicinity is marshy, and subject to intermittent fevers—perhaps more than usually so this year: nevertheless, nothing uncommon was observed in the state of public health." The weather is said to have been extremely hot—"more like that of a tropical than of an European climate."

Before closing my account of these two little outbreaks of yellow-fever in exceptionally northern latitudes, I ought to state that, though nothing of quite the same sort had previously occurred either in England or in France, yet, in both countries, some slight and almost overlooked warnings, to the same general effect, had been given. Thus, in France, though apparently yellow fever had never touched the ordinary land-population or spread from ship to ship anywhere so far north as St. Nazaire, probably, on a few occasions, and in very small amount, the disease had been seen in the quarantine establishment of a still more northerly port—that of Brest, attacking now and then some official whose business had

In some other cases, persons who apparently had not been near any affected ship, but had attended patients from the *Chastan*, were attacked, though but slightly, with symptoms very suggestive of yellow fever. M. Mélier's belief with regard to the several just-cited cases is, that they were cases of true contagion, using the word 'contagion' in the sense in which we call smallpox and typhus contagious. Without pretending to controvert this belief (which on other grounds may or may not be tenable) I would observe that it is not a necessary consequence of the facts recorded in the present papers. The facts, supposing no exception taken to them, would be to this effect:—that labourers who had spent time in the hold of the *Anne Marie*, and had caught yellow fever there, carried with them some power of infection; and that a like power, much feebler in degree, went also with the crew of the *Chastan*. But almost unquestionably, with regard to the *Anne Marie*, and not improbably with regard to the *Chastan*, it seems that the ship, irrespectively of sick persons in it, was a focus of yellow fever infection. And, on this showing, the alleged facts admit of more than one interpretation. Whether, namely, the men carried infection because they themselves had contracted yellow fever, or merely carried infection passively as they might have carried an odour from the ship; whether men who had laboured in the hold of the *Anne Marie* without themselves contracting yellow fever there might equally have carried infection to their homes; whether they who carried infection might have been disinfected by soap and water and change of dress; whether, in short, the infective power belonged, not to the sick body, as such, and to its excretions and discharges, but to the mere washable surface and clothing which had been saturated with the atmosphere of the ship; this question remains unanswered by facts in the present record. And I draw attention to that openness of the question, because of its all-important bearing on the practical issue, whether it was necessary to adopt at St. Nazaire the system of personal quarantine which certain of M. Mélier's regulations enforced."—Extract from Office-Memorandum on the St. Nazaire outbreak. See also Appendix No. 17. The distinctions which I have drawn as to the mode in which yellow fever might have been (if it was) communicated by personal intercourse at St. Nazaire, and the doubts which I have intimated as to the provenness of true contagion there, are equally applicable to the discussion of the somewhat similar facts which are reported to have occurred thirteen or fourteen years ago at Southampton.

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been with a newly-arrived infected ship.\* Dr. Buchanan's inquiry at Swansea elicited that probably on two or three occasions a solitary case of yellow fever had occurred there under like circumstances. At Southampton too, on one occasion, in 1852, it happened that an engineer of an infected ship was attacked with yellow fever on shore eight days after the ship's arrival in port.† And it is alleged that also at Southampton, in the years 1852-3, the landing of yellow fever patients from infected ships led on three occasions to ill-results, as follows:—that in one case, witnessed by Mr. Wiblin in December 1852, it was believed that a convalescent from yellow fever infected two members of his family, who afterwards infected three others, with illness much less severe than ordinary yellow fever, but having at least some affinity to it; that, in another case, witnessed by Mr. Dusautoy, in the summer of 1853, a woman died with symptoms of yellow fever shortly after having washed the clothes of a seaman who had been landed with that disease; that, in the remaining case, witnessed by Mr. Wiblin in July 1853, it was believed that a yellow fever patient taken to the Southampton poor-house communicated his disease, in a fatal form, to another inmate of the establishment. It is proper to add that, in some of the above cases, medical controversy was raised as to the nature of the disease. Of course no absolute judgment can now be given on questions of fact which so many years ago were in dispute; but, so far as the statements are accepted in proof of the communicability of yellow fever by personal intercourse, the acceptance must be qualified with the same considerations as I have expressed in regard of the corresponding statements at St. Nazaire.‡ In the thirteen years which have elapsed since the occurrences in question, persons, more or less ill with yellow fever, have on numerous occasions been landed at Southampton from West Indian steamers; but in no case, so far as my information extends, has it even been suspected that their disease has spread to other persons. Nor did anything of this kind arise in connexion with the above-mentioned case of the engineer who ran the whole course of his disease in Southampton.

The various incidents to which the last preceding pages have been given possess in common one particular kind of interest. For when the public mind is troubled with facts or rumours of epidemic visitation, question always arises how far the mischief can be stopped or prevented by restrictions on the ordinary freedom of traffic, national or international. And since the present report records the coincidence of several cases wherein that

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\* Particulars of one such occurrence (which took place in 1856) are given in the *Bulletin de l'Académie de Médecine*, vol. xxii.

† See the case, as reported by Mr. Wiblin, in the *Lancet* of 1853. I may note here that the ship was a wooden one, and that the engineer, though lodging on shore, had been spending much of his time in the ship. Also I may note that, in our present ignorance as to the incubation-time of yellow fever, we cannot absolutely say that the disease was not latent in the man when he first landed.

‡ See Foot-note (\*) at pp. 32, 33.

question was raised, it may be convenient that I here briefly state the principles on which such cases have been considered.

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When phenomena of pestilence are under popular discussion, and most of all when quarantine is being spoken of, frequently language is used which seems to imply a belief that the medical profession is divided as it were into two camps, respectively of "contagionists" and "anti-contagionists." Now, so far as my knowledge extends, I will venture to say (speaking of course of the medical profession as represented by its acknowledged teachers) that no such duality of opinion exists. That many of our worst diseases acquire diffusion and local perpetuity by means of specific infective influences which the sick exercise on the healthy, is an elementary truth of medicine; and among persons who are competent to distinguish the certainties from the uncertainties of science, there is no more doubt, broadly, as to that truth than there is doubt as to the diurnal and annual movements of the earth.\* Ambiguities which fifty years ago existed in respect of some particular cases have since then been gradually cleared away;—sometimes through the ascertainment that seeming contradictions of fact were facts of different diseases confounded under a common name;† sometimes through the new and conclusive evidence of well recorded cases and experiments;‡ sometimes through improved insight into the habits of a morbid poison;§ and generally through that better grasp which time has given us of the subject as a whole. And more and more the once chaotic phenomenology of contagion is tending to become an intelligible and consistent section in the great science of organic chemistry.

On the other hand, not even the merest tyro in medicine supposes that contagion (as a morbid power acting from each sick centre) operates equally on all persons, or equally under all varying circumstances of place and time. Differences are obvious even to superficial observation, and such differences become still better appreciated as the general doctrine of contagion gets to be better understood.

First, as regards personal differences of susceptibility;—they are seen, on a small scale, when we observe with what different degrees of severity different persons and different families, in

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\* In my sixth annual report, when discussing the subject of the spread of communicable diseases in hospitals, I stated with some detail, and need not now again state, the very different conditions under which different diseases are communicated. See Report for 1863, p. 53.

† Well, for instance, might there be difference of opinion about the communicability of "continued fever," while under that name typhus, typhoid, and relapsing fevers were all spoken of as one disease. So, too, in regard of syphilis, the old uncertainty as to the laws of the contagion depended in great part on confusion between two kinds of chancre.

‡ Such for instance as those by which the contagiousness of typhoid fever and of cholera has been established.

§ As, for instance, in the knowledge which has been got as to the great development of contagious property in choleraic discharges some two or three days after their discharge from the body; or the knowledge of the different effect which one kind of syphilitic inoculation exercises on those who have, and those who have not, previously suffered from a like inoculation.



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similar external circumstances, and with similar exposures to contagion, suffer the diseases which they thus contract;—and, on a much larger scale, the same thing is seen in that permanent and complete insusceptibility which most persons acquire in relation to certain contagia which have once affected them: to small-pox, typhus, and measles, for instance: so that millions of persons who have acquired that kind of immunity are being daily exposed to chances of contagion, but, whatever the quantity of the contagium, and whatever the external circumstances, do not suffer second attacks of the disease which they have once undergone.

Secondly, as the local circumstances vary in which a contagiously-diseased person is placed, so, *pari passu*, the power of contagion may show an almost infinite range of differences. Typhus and typhoid fevers, for instance, which, amid overcrowding and non-ventilation and refuse-odours and foul water-supply, would develop themselves to be the most spreading of pestilences, will, in thoroughly clean atmospheres and with thoroughly clean water-supply, be so restricted in their infectiveness, that typhoid will scarcely be recognized as contagious, nor even typhus extend beyond limits which admit of being narrowly defined. Again there are certain geological conditions which make the greatest difference (though probably only in an indirect way) to the spread of the diarrhœal infections.\* And, even apart from such influences as the above, it seems doubtful whether all contagious diseases are equally capable of pandemic extension:—it is said, for instance, that hitherto neither scarlatina nor typhus has shown much disposition to spread either in Asia or in Africa.

Thirdly, the very important qualification has to be stated, without which no one can bring into an intelligible whole the epidemiology of different lands and different ages of the world, that, in the category of time, far out of human reach, there are circumstances which greatly influence contagion. Any one who will reflect on that most curious branch of natural history which treats of the various plagues which in different times have fallen, sometimes on man, sometimes on his fellow-creatures of the animal or vegetable world, will be convinced that not fixed local conditions, and not mere more or less of international traffic can, either singly or conjointly, explain the wonderful fluctuations of effect. When the ordinary distribution of human disease on the surface of the globe is studied, it is easy to distinguish certain spaces, of larger or

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\* This, in relation to cholera, has been more or less definitely observed throughout all the fifty years that the disease has been studied; first abundantly in India, and afterwards in Europe. See Hirsch's *Hist. Geogr. Pathologie*, Vol. I., pp. 134–146. In 1848–9, when I first had to do with the disease, though but in one city, the fact forced itself strongly on my attention. See reports on sanitary condition of city of London, pp. 95–100 and 223–5. The subject has much prominence given to it, and is admirably treated in Professor Pettenkofer's contributions to the report of the Royal Bavarian Commission on the cholera-epidemic of 1854. See also foot-note, (†) p. 38. The bearing of the geological influence, however, is apparently none but this:—that where populations are living in certain geological conditions, there, unless engineering science have supplied artificial drainage and water-supply, the local atmosphere and drinking-water will almost certainly be much polluted by those fecal impurities amid which the diarrhœal contagia are peculiarly apt to multiply.

smaller area, within which certain well-marked forms of disease appear as though they were native to the soil: where the local pathology is almost as definite as the local fauna: but while some such diseases remain, so far as we know, permanently limited to places where they are endemic, others of them have once or oftener spread widely from their respective centres, have tended to general diffusion on the earth, and have then again retired within their former limits. Again, there are diseases, to which we cannot assign any definite local birthplace, but which, sometimes of prominent interest, and sometimes almost or quite lost to observation, are present on the earth's surface at different times in vastly varying quantities. Now, subject to qualifications of detail, it seems generally unquestionable that the diseases which in one or other of those ways immensely vary from time to time in the quantity of their known existence upon earth, are diseases which human intercourse can spread; and doubtless there are cases where quantitative differences of intercourse can be deemed a sufficient explanation of the quantitative differences of disease. No one, for instance, can doubt but that the changed relations of the two halves of the world after the discovery of America were enough to account for the subsequent dreadful sufferings of America by small-pox, and rendered plausible the hypothesis that the old world got syphilis from the new. Nor—to take a minor and collateral illustration, needs any one go farther than to the changed circumstances of our cattle-traffic within the last few years, in order to explain why the phenomenon of steppe-murrain infection is now again seen in England after an absence of more than a century. But not all the cases in question admit of such facile explanation. Thus,—for what reason it is that Asiatic cholera, during the last half-century, has had certain definite fits of pandemic extension, and has three times been exceedingly fatal in Europe, where previously it had been unknown or was forgotten; or why diphtheria, which scarcely had had a place in history till it overran Europe in the 16th century, and which since then had but rarely been spoken of, has for the last ten years been an important disease in England; or why the plague of the Levant has within the last century or two become an almost obsolete disease; or why the yellow fever of the tropics has in particular years raged furiously in parts of Europe; or why our black death of the 14th century, now not extinct in India, has never but once been in Europe; or what has become of our sweating-sickness of three centuries ago;\* or whence has come the modern importance of cerebro-spinal meningitis;—these are questions which, even separately, but most of all when considered in their mutual

\* The English sweating-sickness was first seen in 1486, when, as a disease previously quite unknown, it started apparently from somewhere in Wales. A second epidemic of it came in 1508; a third in 1518, when it spread from England to the French coast; a fourth and most severe in 1529, when it spread from England over great part of the continent of Europe; and a fifth in 1551. The disease then entirely vanished. A century afterwards a new disease (which has been known down to our times, chiefly in France, as miliary fever, or *la suette*) somewhat resembling the old English disease, but also with definite differences from it, sprang up as suddenly at Leipzig as Ovid's famous Nereid in Ortygia. And that disease, familiarly as it is known in France, is, I believe, unknown in England.

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connexion, are seen to admit of no explanation from a merely biological basis. The student must enlarge his view to regard the chemistry of the surface of our globe as subject to variations, perhaps definitely progressive or cyclical, in which human epidemics are but a part. If popular pathology, working on its few local facts, sees something of this in the "unhealthy seasons" which arise in exceptional circumstances of rain-fall and temperature: if some such "atmospheric" influence must be invoked to explain, even for a single climate, the fluctuating fatality of the most ordinary of zymotic diseases:\* if, as recent researches render probable, the variations of typhoid fever in a single town cannot be understood without reference to the varying water-level in the local soil, and to the physical and chemical consequences of its alternate rises and falls:† much more

\* TABLE showing the Number of Deaths in England from each of certain Zymotic Diseases in each of the 23 years for which the record has been made.

Years.	Scarlatina.	Diphtheria.	Measles.	Hooping Cough.	Smallpox.	Fever.	Diarrhoea, Dysentery, and Cholera.
1838	5,802	—	6,514	9,107	16,268	18,775	3,440
1839	10,325	—	10,937	8,165	9,131	15,666	3,493
1840	19,816	—	9,326	6,132	10,434	17,177	4,799
1841	14,161	—	6,894	8,099	6,368	14,846	4,198
1842	12,807	—	8,742	8,091	2,715	16,201	7,622
1847	14,697	—	8,690	9,260	4,227	30,994	15,630
1848	20,502	—	6,867	6,862	6,903	22,037	15,604
1849	13,111	—	5,464	9,615	4,645	18,347	74,155
1850	13,370	—	7,080	7,770	4,666	15,375	14,400
1851	13,594	40	9,370	7,905	6,997	17,930	18,045
1852	18,813	74	5,846	8,022	7,320	18,641	21,754
1853	15,653	46	4,895	11,200	3,151	18,554	20,502
1854	18,325	203	9,277	9,770	2,808	18,893	42,092
1855	17,128	186	7,354	10,185	2,525	16,470	15,044
1856	13,931	229	7,124	9,225	2,277	16,182	15,912
1857	13,919	310	5,969	10,138	3,936	19,016	24,037
1858	25,481	4,836	9,271	11,648	6,460	17,883	16,004
1859	19,907	9,587	9,548	8,976	3,848	15,877	20,597
1860	9,681	5,212	9,557	8,555	2,749	13,012	11,185
1861	9,077	4,517	9,055	12,309	1,320	15,440	20,999
1862	14,834	4,903	9,800	12,272	1,628	18,721	12,667
1863	30,475	6,507	11,349	11,275	5,964	18,017	16,801
1864	29,700	5,464	8,323	8,570	7,684	20,106	18,366

† I refer particularly to a paper by Professor Buhl, in the first volume of the *Zeitschr. der Biologie*, and to a corroborative paper by Dr. Seidel in a later part of the same volume, on the relations of typhoid fever in Munich to the fluctuations of water-level in the wells of the city. These papers, however, only represent, with regard to typhoid fever, the continuation of a line of study which had been opened with regard to cholera by Professor Pettenkofer of Munich; whose many valuable contributions to the science of cholera deserve the most grateful acknowledgments from all who are interested in the subject. According to this author, the best soil for cholera is a porous soil, easily penetrable by air and water, and in which water is to be found not far below the surface, and which is foul with excremental matters;



is the truth to be appreciated when the field of consideration widens to the epidemiology of the world, and especially when the great pestilences are regarded which have made epochs in human history. Those almost explosive arisings or spreadings of disease are facts of cosmo-chemical disturbance which no mere contagionism can explain. The powers by which such disturbances may be made, the nearer and remoter influences which may vary chemical transformation upon the earth, are hitherto, perhaps, rather guessed at than known; but it seems probable that the so-called caprices of epidemics will never be adequately explained till the interpreter has for his context a true knowledge of those cosmical influences and of the "caprices" to which they too are subject.

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I have dwelt on the above qualifications in order that I may not be misunderstood in the remarks which I am about to make, doubtless in the contagionistic point of view, on the foreign diseases which came under consideration in 1865. Of these, for my present purpose, cholera is infinitely the most important. Cerebro-spinal meningitis, if diffusible by human intercourse, is not so in a high degree. Yellow fever (apart from other considerations concerning it, to which I shall hereafter advert) may at present be assumed to have little or no tendency to spread in this country. But with cholera the case is different. Not disregarding the qualifications which I began by setting forth: not asserting that the mere uniform influence of contagion would account for the several fitful spreadings of cholera from the East; not ignoring that the power of the cholera-contagium in our climate varies almost infinitely according to local circumstances, and specially according to those circumstances which regulate the distribution of typhoid fever: I yet, for public health purposes, deem it quite essential to insist on the evidence which is now accumulated in all the archives of European Medicine, attesting the contagiousness of cholera.

The doctrine on this subject which in my opinion deserves, in the present state of knowledge, to be accepted as practically certain—sufficiently certain, I mean, to be made the basis for precautionary measures, may be stated in the following propositions:—that, when cholera is epidemic in any place, persons who are suffering from the epidemic influence, though perhaps with only the slightest degree of diarrhoea, may, if they migrate, be the means of conveying to other places an infection of indefinite severity; that the quality of infectiveness belongs particularly, if not exclusively, to the matters which the patient discharges, by purging and vomiting, from his intestinal canal; that these matters are comparatively non-infective at the moment

and the times when such a soil is aptest to multiply cholera-contagium are times when the water-level in it is falling after having reached an unusual height. The degree in which a given cholera-contagium, when imported, produces epidemic results is, according to Professor Pettenkofer, essentially determined by the degree in which its importation coincides with the fulfilment of those two conditions of place and time.

when they are discharged, but subsequently, while undergoing decomposition, acquire their maximum of infective power; that choleraic discharges, if cast away without previous disinfection, impart their own infective quality to the excremental matters with which they mingle, in drains or cesspools or wherever else they flow or soak, and to the effluvia which those matters evolve; that if the cholera-contagium, by leakage or soakage from drains, or cesspools, or otherwise, gets access, even in small quantity, to wells or other sources of drinking-water, it infects in the most dangerous manner very large volumes of the fluid; that in the above-described ways even a single patient with slight choleraic diarrhœa may exert a powerful infective influence on masses of population among whom perhaps his presence is unsuspected; that things, such as bedding and clothing, which have been imbued with choleraic discharges, and not afterwards fully disinfected, may long retain their infectious properties, and be the means of exciting choleraic outbreaks wherever they are sent for washing or other purposes.

The precautions, generally, which may be taken against contagious diseases are of two kinds:—first, if possible, to prevent the entrance of the contagion;—secondly, if the contagion be present, to annihilate as far as possible the circumstances which favour its spread.\* And thus, as regards cholera, a first and incalculably important question to be answered by those who have to care for the public health of a country, is the question whether, by any measures of quarantine, they can provide that all contagion of the disease shall be kept outside the limits of their land.

Subject to one qualification, which is not an important one for the present argument, it may, I think, be accepted as certain that quarantine, conducted with extreme rigour, and with the precision of a chemical experiment, will keep cholera out of any part of Europe in which the extremely difficult conditions can be absolutely fulfilled;† and thus, if I speak to the dry question of

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\* To the above-mentioned two kinds of precautions may be added, with regard to many important cases, a third, as follows:—So far as practicable, not to bring into personal relation with the sick, as attendants or otherwise, any persons who have not before acquired, or probably acquired, an insusceptibility to the existing disease. In typhus-epidemics, for instance, economies of valuable life may often be made by preferring for employment as nurses, doctors, inspectors, and so forth, persons who have already once had typhus. The same principle applies to many other contagious fevers; but I have no evidence that it in any degree applies to cholera. If I mention yellow fever in this note it is not with any intention of classing it as a contagious fever in the sense in which typhus is contagious; but, as the same principle of conduct is involved in both cases, this may be a convenient place for observing, that when yellow fever is epidemic in districts, persons to be sent into those districts ought, as far as possible, to be only persons who have already had that disease.

† The qualification with which the above opinion is guarded relates to the uncertainty how far the mysterious influence which starts, and perhaps accompanies, each pandemic extension of cholera, is an influence which creates new centres of "spontaneous generation" for the disease. As regards Europe, there seem to be strong presumptions against the likelihood that any such new centres are created. But this negative cannot be deemed absolutely certain; and of course the qualification becomes more and more important, in proportion as the country to which the question applies is near to those countries where cholera first had its beginning.

medical practice, I have no hesitation in saying that England ought to resist cholera by quarantine. On the other hand, though I cannot pretend to discuss with any kind of authority the non-medical aspects of the question, it would be mere pedantry for me to ignore that facts which are of common notoriety, and considerations which are of common sense, conflict with that medical conclusion. A quarantine which is ineffective is a mere irrational derangement of commerce; and a quarantine, of the kind which ensures success, is more easily imagined than realised. Only in proportion as a community lives apart from the great highways and emporia of commerce, or is ready and able to treat its commerce as a subordinate political interest, only in such proportion can quarantine be made effectual for protecting it. In proportion as these circumstances are reversed, it becomes impossible to reduce to practice the paper plausibilities of quarantine. The conditions which have to be fulfilled are conditions of national seclusion; and the fulfilment of such conditions by England would involve fundamental changes in the most established habits of the country.

In order to illustrate this view, the medical postulates of quarantine deserve to be considered in detail. Quarantine, purporting to be effectual, cannot rest satisfied with excluding from entry such persons as are obviously sick, but, indispensably for its purpose, must also refuse to admit the healthy, till they shall have passed in perfectly non-infectious circumstances, at least as many days of probation as the disease can have days of incubation or latency;—this condition often involving as its consequence that, if one case of disease arise among a number of persons in quarantine, the whole number of apparently-healthy must recommence their period of probation, and this perhaps again and again. Now, setting aside, as not essential to quarantine, the cruelties which its mal-administration involves, and which in practice are almost identified with its exercise: criticising only the conditions which quarantine, if it is to be effective, must involve: and, for the moment, not even counting as an objection the cost of that gigantic establishment which has to be permanently maintained in order to meet occasional exigencies: I here insist only upon the restrictions.\* Considering what they, when

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\* It may be convenient to consider the restrictions in some detail, and with cholera to illustrate their bearing. The incubation-time of cholera, in the strict medical sense of the words—i.e. the time which elapses between the moment of infection and the moment when critical inquiry may first discover an altered (though perhaps but very slightly altered) action of the bowels, may be not more than two or three days; but practically the incubation-time of the disease must be regarded as of much longer duration—as continuing, namely, till the symptoms are so far developed that the sufferer cannot overlook or disguise them; and this point in the progress of the disease may not be reached till the first slight looseness of bowels (which many persons would overlook or deny) has continued for many days, or, it is said, even for weeks. If for the purposes of the argument we assume that an allowance of ten days will cover the time during which infection can be latent or designedly concealed: which, however, is less than the time on which quarantining governments insist, and I believe, only half the time of an average quarantine in Greece: and if we translate into practical language what this would mean, if England had quarantine against the



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really carried into effect, must involve—what inconvenience to persons, what interruption to commerce, and on how vast a scale, and for what indefinite duration of time, no one can expect, in regard of great trading communities, that governments, if they go so far as to enact, will have much success in enforcing, quarantine. Against the efficiency of it, when enacted, there operate some of the strongest of all law-breaking influences; on the one hand, instincts of contempt for the narrow self-protectiveness which it represents, and, on the other, those eager commercial interests which now mainly govern the world. The latter, in proportion as they are affected, elude the restrictions which would embarrass them. Contraband of quarantine, like ordinary smuggling, is developed as soon as the inducements for it are considerable. And thus, practically speaking, where great commercial countries are concerned, it can scarcely be dreamt that quarantine-restrictions will be anything better than elaborate illustrations of leakiness.

In respect of England, moreover, there are other facts to be stated. In 1832-3, when some sort of quarantine against cholera was adopted here, the results gave no encouragement to a repetition. Then followed the erroneous belief (which subsequent better knowledge has corrected) that the spread of cholera is unaffected by human intercourse. Under these and other influences the thought of quarantine in England became more and more obsolete, and the possibility of enforcing it, if ever so much desired, fell more and more towards nothingness. Probably there was the practical conviction that, against any contagious disease current on the continent of Europe, quarantine, of the utmost strictness which England could hope to attain, would not give results worth the sacrifice. I daresay that quarantine in England was never otherwise than very lax. And at all events for many years past it has, in every medical sense, been abolished. Also with its virtual extinction, the establishment for giving it effect has declined. As successive governments advanced further and further in relinquishing what probably at its best was only a sham of quarantine, corresponding reductions of establishment were made. And the result of the entire process may be told in these very few words,—that, at the present moment England has not in readiness the means of properly quarantining even a single ship.\* It is not for me to say that this state of things may be deemed final. But if reversal of the policy which it expresses were ever so much desired, it could not be effected off hand. Enormous first expenditure of money in creation of proper lazarets would be wanted, as well as subsequent very large annual outlays

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continent: it would be, that ten days would be the minimum time in which any person, sick or healthy, could enter England from the continent—that, for instance, our present 90 minutes between Calais pier and the Dover railway-station would become an affair of at least ten days, and that no national advantage from quarantine could be promised, if this rule were in any single case relaxed or evaded.

\* It may be proper to mention that the ceremonies to which, under the name of quarantine, certain trans-atlantic ships are subjected, on their arrival in this country, have not, properly speaking, any medical significance in relation to this country, but are part of an international obligation contracted for commercial reasons.

for maintaining the necessary establishments. And the time which would be required for bringing the organization into work forbids the supposition that this could ever be done on emergency.

So, for England, under present circumstances, quarantine against cholera, as existing in the countries which are nearest to us, is a precaution of which there can be no serious thought. Were the country ever so ready to endure those extreme restrictions without which the whole thing is fruitless and absurd, the means for imposing them do not exist.\* To extemporise a *cordon sanitaire* is simply and totally impossible; and no partial quarantine can be relied on for national purposes. Not only as regards cholera, but generally as regards all contagious disease, the position, which now has to be recognized and dealt with, is—that contagions current on the continent of Europe must be deemed virtually current in England.

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Having regard, however, to our entire unprotectedness by quarantine against any contagions which may threaten us from abroad, I feel it additionally incumbent on me to insist on the present very imperfect state of our sanitary law and administration. Especially in view of the present re-infection of Europe by Asiatic cholera the necessity for a better state of things seems to me of the most urgent kind.

On the one hand I would beg leave again to refer to the evidence which is summed up in my last report, and is corroborated by new instances in the present one, as to the very extensive inoperativeness of the Nuisances Removal Acts in England.

And on the other hand I would refer to the observations, which conclude my letter (Appendix No. 9.) addressed to the Lord President in April last, on the powerlessness of local authorities in regard of certain dangers of contagion. The footing on which the country now stands in relation to foreign contagions is, I apprehend, this:—that they have to be dealt with like our ordinary home-bred contagions; that, for preventive purposes, no action, or at least no effectual action, can be taken by the general executive of the country; that, so far as any good is to be got out of proceedings directly against contagion, this, like the good of indirect proceedings, has to be sought in the

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\* When cholera last year broke out so vehemently at Alexandria, and was hitherto not in Europe, it would have been, comparatively speaking, a trifle to quarantine arrivals from that one port; not only because of their being few, in comparison with the innumerable arrivals from the ports of continental Europe, but also because, with the long voyage, the object of quarantine would generally have accomplished itself before arrival. And medically, of course, such a precaution was to be desired. But while my Lords still had it under consideration, whether to establish this amount of quarantine, and to provide the means of conducting it, cholera had already almost ceased at Alexandria, and had shown itself in other various ports. Before proper quarantine arrangements against Alexandria could have been organised, no quarantine would have been self-consistent which had not been a quarantine against France, Turkey, Spain, Italy, and Germany, as well as against our own possessions of Malta and Gibraltar; and doubtless the contagium of cholera was in Southampton long before any effective arrangements could have been called into existence for excluding it.

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vigour of local authorities. It therefore becomes quite essential that the position of local authorities generally, in regard of contagion, should be reviewed. As to contagions already current in the country, practically any diseased person scatters his infection broadcast almost where he will—typhus or scarlatina, typhoid or smallpox, or diphtheria; and, under present circumstances, if cholera were in a district, the patient with choleraic diarrhoea would form no exception to the general licence. I cannot say that the exceptional case of the foreign infection seems to me of more importance than the every-day case of our native diseases; but I would venture to submit that, with regard to both classes indifferently, the present unlimited licence seems urgently to demand restriction. As in the case of typhus or typhoid, so also in the case of cholera: or, to use one general description, in the case of any dangerous contagious disease: the local authority, I submit, ought to have the power of requiring from the diseased person that, in regard of residence and otherwise, he shall so conduct himself as not unnecessarily to multiply the chances of extending his infection to others. Subject to the condition that proper hospital-accommodation can be offered, the authority ought to be able to enforce, in regard of any dangerous contagious disease, that the sufferer should not be in circumstances which promote the spread of disease to the general population. This power, exercised in seaport towns in relation to the poorer classes who might arrive infected from abroad, would in effect work thus:—such persons would be debarred from resorting to the common lodging-houses and crowded tenement-houses of the town, and would (as much to their own advantage as to that of others) be constrained to go to the local hospital, there to remain till cured. How far such a power for local authorities would be delegable to them under the Quarantine Act, or would require special legislation, is perhaps not a question of any ultimate importance, and is one which I am not competent to discuss. It deserves notice, however, that if the power in question were vigilantly used by local authorities, and in conjunction with other sanitary powers, its exercise would not of necessity be only of local effect, but might under some circumstances contribute, even importantly, to those national purposes which quarantine is intended to accomplish.\*

\* For obvious reasons it is only to a small extent that legal restrictions can avail to prevent the spread of such contagions as are once current in the country. They can only apply to conduct by which the public health is manifestly and directly endangered, and not to all kinds of such conduct. But in proportion as the physiology of contagion gets to be better understood by the public, the influence of legal restrictions will be increased by the appeals which well-informed persons will be able to make, and to which the example of such persons ought to give force, against all reckless conduct in such matters. Conditions of lodgment, as discussed in the text, are not all that require consideration. Complaints are often made of the freedom with which persons imperfectly convalescent from contagious fevers (as, very notably, from smallpox) expose themselves in places of common resort, and a careless sending of sick children to school often does much to spread diphtheria, scarlatina, and other contagious diseases; the careless transmission of infected things to common laundries, and of course the traffic in infected rags, imply dangers of the same sort; and against all such sorts of action the public ought to have some ready means of



Essentially different from the danger which attends the migration of persons affected with cholera or its premonitory symptoms, is the possibility, illustrated by the Swansea experience of last October, that ships infected with yellow fever may introduce that infection into England. I do not pretend to say that yellow fever is absolutely non-contagious in this country: non-contagious, I mean, in the sense in which typhus and smallpox are contagious: much less do I pretend to say that it is absolutely non-contagious in climates hotter than our own. This doctrine, however, even in the extremest form in which it can be stated, is not only held by many persons of high authority who have studied the disease in its trans-atlantic strongholds, but is certainly rendered extremely probable by facts which we have observed in Europe. When Lisbon, in 1857, was being so terribly scourged by yellow fever, thousands of its population fled far and wide into surrounding districts; among those who thus fled, numbers were already incubating the disease, and of course fell with it in their respective places of refuge, more or less distant from Lisbon; in 182 cases of this description, the Portuguese Government caused inquiry to be made whether persons about the sick fugitive had shown any signs of the infection; and the answers were, that in no single case had this occurred. So again, in our Swansea experience, nothing like personal contagion seemed probable. And though undoubtedly at St. Nazaire there were a few facts which led M. Mélier to impute contagiousness to the disease, the overwhelming majority of facts pointed, even there, to an opposite conclusion, and suggested that in the exceptional instances some source of fallacy had been overlooked. Quite unquestionable, however, is the evidence that the infection of yellow fever accompanies marine traffic from land to land; and in proportion as the belief is untenable that the disease is personally contagious, in such measure the alternative must be accepted—that infectiveness is in the body of the ship. That yellow fever is a malarious rather than a truly zymotic

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protecting itself. So, too, as regards the use of public carriages by persons contagiously diseased: no doubt a proper organisation for the conveyance of sick persons ought to form part of the medical relief arrangements of every large town, and the use of the common public carriages ought then to be forbidden: but if, as often happens in our present circumstances, persons who have smallpox and other dangerous contagious diseases cannot be taken to hospital except in common street cabs, surely the subsequent disinfection of every such carriage might be insisted on. Other dangers are for personal, rather than municipal, precaution. For instance, the modes by which puerperal fever is spread, and the extreme and fatal sensibility of puerperal women to the contagion of scarlatina, are matters which require, both generally from the public, and specially from persons who visit from one sick room to another, far more thought than is yet given to them. See App. No. 7., and Sixth Report, p. 59. Here also, I may observe, for the consideration of those whom it concerns, that our new institution of Turkish baths, used in common by swarms of persons—by some more or less for health, but by numbers also for mere enjoyment or curiosity, involves (inter alia) some awkward chances of syphilitic contagion: indeed Turkish baths are now among recognized means of treatment for persons with constitutional syphilis, who, in some cases, have local symptoms by which the disease can be communicated: and the question whether such patients take the general run of public baths, and are among the numbers who nakedly occupy the seats and couches of common sweating-rooms, is one which may greatly concern other frequenters of such establishments.

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disease, is a disease of the nature of ague rather than a disease of the nature of typhus,—that the ship which spreads infection does so irrespectively of the persons who are in it, whether they be healthy or diseased,—that the ferment of a local and impersonal infection clings to the ship from shore to shore, and breeds new malarious action in any congenial soil to which it comes,—that the exceptional and contingent power of persons to spread the disease is generally but a very scanty and transient power, not belonging particularly to the sick, but to the healthy in common with them, attaching perhaps mainly to their dress, and equally predicable of all absorbent things which the atmosphere of the ship has imbued;—this, it seems to me, is the doctrine of yellow fever which tallies best with our present knowledge of facts. Without pretending to dogmatise theoretically on a subject which no doubt has its difficulties, I am strongly of opinion that preventive measures based upon that doctrine are, under present circumstances, amply sufficient for the practical purposes of this country. If it were, as far as practicable, provided that, during summer weather, ships which might reasonably be suspected of yellow fever infection should not come into close relation with shore or with other shipping till they, and all things in them which might carry infection, had undergone thorough disinfection, this, in my opinion, would probably suffice to prevent in future any such unfortunate occurrence as the late outbreak of yellow fever at Swansea. I append as bearing upon this suggestion (App. No. 17) the regulations which were put in force by the French government on occasion of the disaster at St. Nazaire, and therewith the remarks which I submitted to the Lords of the Council on the question of the applicability of such regulations to this country. It will be observed that the suggestion which I have just given corresponds in principle to one large part of the French regulations. And there is not, in my opinion, any present reason for supposing that England would get additional security by adopting against yellow fever the system of personal quarantine which other of the French regulations enforce.

JOHN SIMON.

# APPENDIX.

## No. 1.—STATISTICS OF THE NATIONAL VACCINE ESTABLISHMENT.

APPENDIX.

No. 1.  
Statistics  
of the  
National  
Vaccine  
Establishment.

### 1. STAFF of the ESTABLISHMENT at end of 1865.

N.B.—The Stations named in *italics* are Educational Vaccinating Stations, authorized by the Lords of the Privy Council, for the purposes of their Lordships' Order of December 1, 1859.

	Members of the National Vaccine Establishment supplying Lymph for the Public Service.	Vaccinating Stations.	Days and Hours of Attendance.
Vaccinators salaried from theParliamen- tary Grant.	Mr. John Newton Tomkins, In- specter.	Russell Place, Fitz- roy Square.	Mon., Tues., Wed., Thur., Fri., Sat.; 10—11.
	Mr. James Furness Marson.	<i>Surrey Chapel, Blackfriars Road.</i>	Tuesday, Thursday; 1—2.
	Mr. George Lewis Cooper.	Battle Bridge.	Tuesday; 12—1.
	Dr. Richard Sharpe -	Bermondsey.	Tuesday; 10—11.
	Mr. Robert Wade -	Dean Street, Soho.	Monday; 12—1.
	Mr. Arthur Bernard Macann.	King Street, Port- man Square.	Monday; 10—11.
	Mr. Wm. Jones Lewis.	Spital Square, Wellclose Square.	Monday; 10—11. Tuesday; 9—11.
	Mr. George Simpson	<i>Tottenham Court Chapel.</i>	Monday, Wednesday; 1—2.
	Mr. Ellis Southern Guest.	<i>Manchester.</i>	Monday; 2—4.
	Mr. John Garner -	<i>Birmingham.</i>	Monday; 10—12.
Parochial and other Vaccina- tors not sala- ried from the Parliamentary Grant, but furnishing Lymph at a fixed rate of payment.	Mr. William Yeoman Sheppard.	<i>Bristol.</i>	Tuesday; 10—12.
	Mr. Arthur Browne Steele -	<i>Liverpool</i>	{ Monday; 9—10. Friday; 2—3.
	Mr. John Henry Wilson -		
	Mr. John Fenton -		
	Dr. Edward Lowe Webb.	<i>Pimlico.</i>	Monday; 10—12.
	Mr. James Lunn Gilchrist.	<i>Newcastle-on-Tyne.</i>	Tuesday; 2—3.
	Mr. Henry Geo. Al- lanson.	<i>Sheffield.</i>	Wednesday; 3—4.
	Mr. William E. Grindley Pearse.	<i>Westminster.</i>	Monday; 9—11.
	Mr. James George Gerrans.	<i>Marylebone.</i>	Monday; 10—11.
	Mr. Robert Cottam -	<i>Leeds.</i>	Tuesday; 2—3.
	Dr. Edward Lynes -	<i>Coventry.</i>	Monday; 12—2.
	Mr. Joseph Teal -	<i>Salford.</i>	Thursday; 3—4.
	Dr. James Dunlop -	<i>Glasgow.</i>	Monday; 12—1.



## APPENDIX.

Statistics of the National Vaccine Establishment—*continued.*

No. 1.  
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## 2. SOURCES AND AMOUNT OF LYMPH SUPPLY IN 1865.

N.B.—The Stations named in *italics* are Educational Vaccinating Stations, authorized by the Lords of the Privy Council, for the purposes of their Lordships' Order of December 1, 1859.

	Vaccinating Stations.	No. of Vaccinations performed at the Stations respectively.		No. of charges of Lymph supplied from the Stations respectively.	Remarks.
		Prim <sup>y</sup>	Re-vac <sup>us</sup>		
Vaccinators salaried from the Parliamentary Grant.	1. Russell Place - - -	536	—	5,186	
	2. <i>Surrey Chapel</i> - - -	1,037	33	14,654	
	3. Battle Bridge - - -	390	—	8,427	
	4. Bermondsey - - -	459	24	7,532	
	5. Dean Street, Soho - - -	438	71	9,230	
	6. King Street, Portman Square	291	18	6,664	
	7. Spital Square - - -	311	—	11,351	
	8. <i>Wellclose Square</i> - - -	296	—	11,648	
	9. <i>Tottenham Court Chapel</i> -	1,575	32	20,084	
Total - -	9 Stations - - -	5,333	178	94,776	
Parochial and other Vaccinators not salaried from the Parliamentary Grant, but furnishing Lymph at a fixed rate of payment.	1. <i>Manchester</i> - - -	1,307	14	15,337	
	2. <i>Birmingham</i> - - -	1,321	180	5,872	
	3. <i>Bristol</i> - - -	298	1	1,550	
	4. <i>Liverpool</i> - - -	768	—	20,199	
	5. <i>Pimlico</i> - - -	662	13	11,337	
	6. <i>Newcastle-on-Tyne</i> - - -	485	13	20,149	
	7. <i>Sheffield</i> - - -	308	25	6,126	
	8. <i>Westminster</i> - - -	778	14	13,963	
	9. <i>Marylebone</i> - - -	863	75	4,250	
	10. <i>Leeds</i> - - -	608	—	14,004	
	11. <i>Coventry</i> - - -	470	2	2,968	
	12. <i>Salford</i> - - -	779	—	7,467	Begun in March.
	13. <i>Glasgow</i> - - -	153	—	1,834	Begun in Oct.
Total - -	11 Stations increased during the year to 13 - - -	8,800	337	125,056	
General Total	20 Stations increased during the year to 22 - - -	14,133	515	219,832	

Statistics of the National Vaccine Establishment—*continued*.

## 3. SUMMARY for the Years 1856-1865.

Year.	Total Vaccinations performed.	Re-vaccinations included in preceding Column.	Number of Charges of Lymph supplied.
1856 - -	7,039	?	210,942
1857 - -	6,327	?	213,207
1858 - -	6,445	?	234,150
1859 - -	9,030	?	237,801
1860 - -	13,849	?	228,347
1861 - -	12,009	?	225,000
1862 - -	13,149	?	211,475
1863 - -	20,600	?	239,432
1864 - -	13,727	?	203,250
1865 - -	14,648	515	219,832

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## APPENDIX.

No. 2.  
On the  
*Housing of the  
Poor in Towns,  
by Dr. Hunter.*

No. 2.—REPORT by Dr. HENRY JULIAN HUNTER on the HOUSING of the POORER PARTS of the POPULATION in TOWNS, particularly as regards the EXISTENCE of DANGEROUS DEGREES of OVERCROWDING and the USE of DWELLINGS UNFIT for HUMAN HABITATION.

The subjects of OVERCROWDING and the USE of HOUSES UNFIT FOR HUMAN HABITATION are so intimately connected that it is not considered desirable to keep them apart throughout this report ; so as in fact to make of it two reports ; but for the mechanical purpose of easy reference a sketch of the present state of the administration of the laws on each of the two subjects is prefixed in a separate form in Part I.

Considering, as the reporter does, that the peculiar acts for (1) SCOTLAND, (2) GLASGOW, and (3) LIVERPOOL, afford in many respects models for the regulation of the matters in England, the acts, with the local details belonging to the districts in which they run, are described in Part II.

The frequent reports of the metropolitan officers of health, and of other writers who from time to time renew the sad story of household discomfort in LONDON, render superfluous the introduction here of fresh details on that subject. There are, however, some peculiarities of London misery, and peculiarities of municipal administration, which give reason for a few remarks to be found in Part III.

The rest of the report, forming Part IV., is composed of observations made by the reporter in numerous towns of England, together with quoted opinions and complaints stated to him by the various local authorities and their officers whom he consulted. Some little peculiarity of character attaches to every town of England ; but as the report is long, and some of the places visited not very important, it is perhaps best to name a few of the towns, and to give some indication of the chief interest, as regards the present subject, excited in each.

The townships which make up the great town called Plymouth are remarkable for the high number of persons to a house, in which respect they have no competitors. The town of Newcastle-on-Tyne contains a sample of the finest tribe of our countrymen, often sunk by external circumstances of house and street into an almost savage degradation. At Sunderland houses of several storeys stand in lanes but a few feet wide. At Bradford is an instance where a corporation, making a slow and steady progress in town reform, is burst in upon by many thousands of immigrants, who are stowed away in cellars and garrets, while authorities and employers are at issue whether more importance should be attached to the quantity or to the quality of proposed new buildings. The change from evil to good which the last quarter of a century has seen at Nottingham is the more gratifying as it may be traced almost entirely to judicious municipal administration. The immense number and comfortable state of the people of Birmingham and Sheffield show that not only are the hideous abominations of cellar bedrooms and bedrooms over privies unnecessary in great industrious communities, but that working men can do very well without single-room tenements, or even sublet houses at all, for very few such are found in these great towns. Reference may also be made to Merthyr, where circumstantial difficulties have till lately overborne the local sanitary administration, to Bristol, where the blankest poverty and domestic misery abound in the wealthiest town of Europe, and to Cardiff, where the local authorities have instituted an unusually exact system of inspection and control.

Provincial character is wearing out in most things, and in respect of the matter here considered it should be on the wane. A few years ago



it might have been said that the comparative value of material and labour, or, more practically, the question of brick or stone, made the difference between a comfortable and an uncomfortable town, a town of small houses or of sublet rooms ; but now means of carriage have done much to render equal both prices and wages, and there seems no reason why the best characteristic of each town should not become ordinary all over the country.

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## PART I.

## ON THE MEANS WHICH EXIST OF REPRESSING OVERCROWDING AND THE USE OF HOUSES UNFIT FOR HABITATION.

The powers by which overcrowding and the use of houses unfit for habitation are dealt with in England beyond the metropolis are administered by local boards of health in places which have adopted the Local Government Act, or by similar bodies under that or any other name who may have been created by local acts, or are otherwise the nuisance authorities of the place.

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overcrowding.

These powers are given by—

The Towns Improvement Clauses Act of 1847,  
The Public Health Act of 1848, with which is joined the Local Government Act of 1858,

The Common Lodging Houses Act of 1851,

The Common Lodging Houses Amendment Act of 1853,

The Diseases Prevention Act of 1855 (when in force), and

The Nuisances Removal Act of 1855, with the amendment of 1858.

To the operation of these aid is given by

The Labouring Classes' Lodging Houses Act of 1851, and

The Labourers' Dwellings Act of 1855.

In addition to these statutes numerous byelaws have been made by local boards of health, and sanctioned by the Government, under the Local Government Act of 1858.

## OVERCROWDING.

The power to deal with overcrowding is to be found in the Nuisances Removal Act, sect. 29, and in respect of certain houses called common lodgings, where the reception of lodgers is made a trade, in the two Common Lodgings Acts, and in the 66th section of the Public Health Act of 1848. It will be observed that where the permanent inhabitants of a house are not all of one family, some part must necessarily among poor people be lodgers, and the house to that extent a lodging house. Still it is not necessarily a *common* lodging house, although the legislature seems to have viewed houses as being only of two classes, a private house or a common lodging house. The word "common" was not of familiar use in this sense before the passing of the act, indeed the whole phrase seems the creation of the act, it is therefore not surprising to find that the definition of a common lodging house varies with the opinion of local legal advisers, and that their conclusions are widely different.\*

\* Mr. Stone, in his *Justices' Manual*, remarks, no definition is given of the term common lodging house, either in these acts or in the Public Health Act, 1848, that proposed by the House of Lords when the latter act was in progress having been rejected by the Commons. But it is obvious that it will not extend to all houses in which lodgers are received. It must be confined to the inferior houses frequented by vagrants, tramps, and others of the like class, where they are taken in for money, even for a night, and where the same room is occupied by more than one family at the same time. The law

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In some towns overcrowding is viewed with alarm as a serious menace to the health of the community, and in dealing with the evil two plans are adopted, neither of which, I believe, was intended by the act under which it is carried out. The one plan, of which Newcastle and Gateshead are notable instances, is to push the Common Lodgings Act by regular nightly inspection, and, under colour of a suspected non-registered lodging house, to enter any private house, to ask the persons found therein their names, to verify their claim to be of one family, to judge of the suitability of the accommodation, to compel registration if fit, and to prosecute if unfit. This is carried out by judicious officers, and operates as a house-to-house visitation, not without its terrors to breakers of the law. But it is doubtful whether this was the intention of the act.

The other plan is more commonly adopted. The inspector of nuisances uses by day his right of calling, and under the 12th section of the Nuisances Removal Act examines the rooms, and then, gaining reasonable suspicion by the sight of persons and beds, and by inquiry of the neighbours, he calls in the medical opinion prescribed in section 29, and gets the person permitting such overcrowding fined, and the crowd dispersed. In the 29th section it is seen that danger or prejudice to the health of the inhabitants is essential to a justice's order, and no minimum area is prescribed. It is probable from this that the legislature rather contemplated interference with cases of danger arising within the medical practitioner's observation, where there was present disease, than that such proceedings should be specially initiated by the inspector of nuisances (in whose prescribed duties no interference with crowding appears), and be supported by speculative medical opinion. Under either plan overcrowding is dealt with, at least indirectly, if not by questionable law; and even where the same officer held appointment both as inspector of nuisances and of common lodgings it was often admitted that people obeyed from terror of regulations which could not be legally enforced. The interference is entirely for the people's good, but the position in it of the officials is a false one. Dr. Trench, the medical officer of Liverpool, whom I here particularise as being an officer whose judgment few will dispute, thought that the system pursued there of pressing all the houses which could possibly be

officers of the Crown have interpreted the act as extending to "that class of lodging houses in which persons of the poorer class are received for short periods, and though strangers to one another are allowed to inhabit one common room"; and it seems to extend to rooms in public houses in which persons are so lodged.

The law officers do not seem to have considered the importance which attaches to their words "for short periods," and in reply to a query put by the General Board of Health, and printed by them with the reply on the 17th October 1853, they give a second opinion as follows: "Q. Whether lodging houses, otherwise coming within the definition, but let for a week or longer period, would from the latter circumstance be excluded from the operation of the act? A. We are of opinion that the period of letting is unimportant in determining whether a lodging house comes under the act now in question."

The law officers proceed as follows and to a certain extent justify the proceedings of the Newcastle authorities:—"A serious difficulty arises where the owner *bonâ fide* lets different parts of the house to different individuals, and these lessees take in lodgers of such a description as would in an ordinary case constitute the house a common lodging house. The question which here arises is, Whether each apartment so used is to be considered a common lodging house of which the lessee is the keeper?"

\* \* \* \* \*

"Considering, therefore, that apartments thus let and occupied are especially within the mischief intended to be remedied by the act, we think that an attempt should be made to treat them as common lodging houses, and to enforce the provisions of the act with respect to them against the tenants who thus receive lodgers" \* \* \*

There is much more in the opinion indicating the doubts of the counsel as to the meaning of the act.

called "lodgings" into the list was a good way of organizing house-to-house visitation ; but he would not claim any right to do so under the law. The proceedings of one able officer in the North went to the length of entering brothels, and rousing up and examining all the strangers there in the middle of the night ; another turned scores of people into the street at three in the morning. On the contrary, in the hands of a sluggish official very few houses will be registered, and no proceedings will be taken under the 29th section, no public prosecutor for the purposes of that section being named, and various weak excuses being admitted in all cases of overcrowding. The justices' bench has, in the absence of intelligible law, adopted very various practice. Under the 29th section, London magistrates hold that every person should have a certain allowance of space (in some cases taking 300 cubic feet, in others 400) to live in, while other benches will not even convict on the direct evidence of a medical officer where there is a much smaller amount. Some magistrates will put the section in force in houses where the several single rooms are occupied each by a family ; others will not. Also, with regard to the common lodgings, some will limit the definition to the reception of lodgers for a short period ; others will, as in London, give the acts their fullest powers. The two courses I have described being the only means of gaining the facts of the cases on which proceedings can be founded, it would appear to be necessary that some justification be given by authority to the inspector of nuisances, and some definition be laid down of a common lodging house, and house of which there can be reasonable suspicion of being a common lodging house. The inspector of nuisances ought never, under colour of executing the duties of his office, to obtain evidence of any offence whatever of which he has no official cognizance. The inspector of common lodgings, as such, ought, I think, to have but very limited instructions as to entering an unregistered house by night, and if the definition were well known and sufficiently inclusive he would have no need. Trade jealousy would then suffice to provide information. The vagueness of the expressions both in the Common Lodgings Acts and in the 29th section allows the officer immunity whether in idleness or in vexatious energy. The various definitions of common lodgings in use are stated in Part IV. of this report, for the consideration of superior judgment. As to the interference exercised by the inspector of nuisances, the general adoption of clause 443 in the Police Act for Scotland, 1862,\* or the sense of it, declaring crowding a nuisance in itself (see Part II.), would end that anomaly in the administration of the law.

In the extreme west and north the authorities have no common definite opinion or practice in dealing with these houses of single-room tenements, where every room is somebody's bedroom. A crowded room appeared sometimes to be justified by an adjoining empty one, and at other times a prosecution against a crowded house was not ventured on in the absence of evidence of persons inhabiting any one crowded room not being of one family. A house may be let in four separate tenements of one or two small rooms each. In one live six Irish adults, with a due proportion of children, having a cubical space of perhaps not 100 feet each. Another tenement holds a like family ; the ground floor contains the landlord and his wife, an old couple ; but the garret is vacant and to be let. In such a case the justice may hold the crowding of the two tenements compensated for by the comparative voidness of the two others.

It would be well if the "person permitting such overcrowding" could be taken everywhere, as in London, to be the owner who lets

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tration of the  
law.

\* Called Provost Lindsay's Act, after that excellent administrator.



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the tenement. He is in Scotland made responsible by the act, and successful process is made against him in London. Once punished, the owner becomes the most efficient protector of the neighbouring public against the evil; but the lodgers or tenants are not easily subjected to fine; when invaded in one region they fly to another, where they settle in intact numbers, to remain until the authorities again come up with them, and then again to disperse and re-form.

Although the small self-contained houses which form the bulk of our new manufacturing towns are so seldom dangerously overcrowded or otherwise unfit for the people usually accommodated in them, and are comparatively so easy of inspection that the present law would need little change in respect of them, still houses let in single-room tenements do require a strengthening of the law, by which some hindrance to the letting of less than two rooms for a family, or some fixed ratio of space and persons, may be attained. Under the present, or under an amended law, a sufficiently vigorous administration among single-room lettings can only be got by a lawful house-to-house visitation, and either a register, or a ticketing system as at Glasgow. The visitation itself wants legalization, and when this is done it will, by itself, be a sufficient process in ordinary towns. Other means of dealing with the evil have been proposed, such as the limitation of four families to a house, but so various are the forms of the overcrowding nuisance that unless a great number of such limits were described every statute to abate overcrowding will prove weak. If overcrowding were, after the Scotch example, declared to be a nuisance, and a medical officer's evidence on the point were to be taken as conclusive in each case, a judicious officer might reach every instance, and hardship to the exceptional cases would seldom occur. A fixed minimum of space is, however, desirable, and the London magistrates have decided to explain section 29 by a minimum of 300 to 400 feet.

Medical witnesses under section 29 will not bind themselves to demand a fixed minimum area, and this with reason, as ventilation and other circumstances combine to affect each case; but the consequence is, that, having no authority to quote, they are not taken as absolute judges. The local boards, on the contrary, have power to fix the area for a common lodging, and on a prosecution the inspector has only to refer to his printed regulations, which vary in their demands from 200 to 350 cubic feet. When it is considered that this area is for a sleeping room unused and ventilated by day, the relatively equal demand for a room of all work inhabited every hour of the 24, and therefore with closed windows, should be at least double the quantity; but then let us see how this would work. A man, his wife, and his five children (counting these as halves) would require, at 500 cubic feet each, 2,250 feet, or a room 15 feet by 15, and 10 feet high, and these dimensions, I need hardly say, are seldom or never now attained in houses let off by the single room, and therefore not likely to be ordered by justices in the present state of the law. It would be well, therefore, if, in addition to the clause 29 in the Nuisances Removal Act, some fixed minimum was given by authority for all cases of single-room holdings, and that the landlord could be made responsible where he lets a family inhabit a room of less accommodation, but this minimum, if it shall work well, must be fixed low. The overcrowding of the rows of small self-contained houses of three rooms each is as nothing in its debasing and morbid influence compared with that found where the staircase is but a perpendicular street, often stone-dark and filthy, where every door opens into a room reeking with the intermixture of diurnal and nocturnal odours, where even straw has been discarded

as a luxury which interferes with consumption of whiskey, and the cheaper substitute, shavings, lying bare to the floor and bare to the sleepers, have to be renewed by public compassion, because even they had got mouldy and verminous. Such "tenement" houses are found in the north, the west, and in London, and a low minimum area, if a fixed one, would in such compel the possession of two rooms by each family almost as readily as if a statute forbade these single-room lettings altogether, a course which would not be unattended with hardship to old persons.

Rents would no doubt be higher for two rooms than for one. It cannot be said with certainty that rents are too high in any town, because the capital value of the houses depends on the auction value of land, which is in a prosperous town a very speculative commodity to deal in; but this may be taken as certain, that in all but perhaps some half dozen towns three-roomed houses may be built for labourers at 3s. a week, if situation be no object, and the ground be limited by no water, fortifications or estates on which building is not permitted. A reference to London and the towns of the west or the north will show that a proportionate price is given for the very worst possible lodging.

As the 29th section provides no right of entry for its medical witnesses (who are perhaps supposed to be professionally engaged on the premises), so does it omit any provision for their payment. This cost is sometimes defrayed by the guardians of the poor, who employ their own officers, in order to avoid some of the risk of opposing medical evidence.

The Police Act for Scotland, section 443, by declaring overcrowding a *nuisance* for which the owner is responsible, seems intended to give all reasonable power; but it would have been better here also, if the lowest ratio of space to persons had been defined by the statute, than that it should have been left to the justices under the guidance of skilled witnesses. In Scotland the facts of overcrowding are arrived at without indirect proceedings; but when the case comes to be tried the prosecution is, as in England, entirely subject to the view taken by the magistrate.

At Glasgow the question of overcrowded houses has attained such magnitude of importance as to compel the abandonment of all prejudice, and the peremptory defence of society against individual aggression, by the enforcement of a fixed ratio of capacity and inhabitation through a statute called "The Glasgow Police Act, 1862." Nothing of the kind has been attempted elsewhere. The Glasgow act is to continue in force for five years, and, although it at first met with opposition from the owners of inferior tenements, it is now so firmly established as an useful though not yet complete experiment that the corporation has already begun to make arrangements for its renewal without the expectation of any serious opposition.

In towns in which in this respect night inquiry by the officers has been most minute and industrious, as, for instance, in Newcastle, the very frequent discovery of a pair with six, seven, or eight children, some of whom must at least be adolescent, who have but one room for all purposes, gives warning of the great change which the introduction of the Glasgow system would bring. The officer meets with a pair with six children in a single room, who nevertheless find accommodation for two or three lodgers. He can deal with the lodgers

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either under the one<sup>st</sup> act or the other; but with the remaining eight, who have but a small kitchen, buried perhaps in an area, or a slope-roofed garret, he can do nothing because they are of one family. The limitations of the words "one family" are construed more or less liberally; indeed the same thing, when differently expressed, seems to divide into two. A man and his wife, having, with other children, a daughter who is perhaps a widow with four children, can hardly be charged with crowding persons together "not of one family." But when a pair take in, in addition to their own children, an old father and mother, or a few brothers and sisters, the young couple being the presumed occupiers, legitimate reason for interference seems to be expressed. In reply to inquiry on this subject, untruth is habitually told; perhaps the most authentic account of the number of people living in single rooms is to be found in the returns of the inspectors of common lodgings, who have made it their business to examine houses suspected of receiving lodgers. In these cases the owner, though he may allege that all his sleepers are "one family," cannot disguise, and in fact has no inducement to disguise, the actual number of sleepers, and the numbers in the single rooms of the north and west, where it is to be remembered that the same house contains many such rooms, overwhelm one with the difficulty of the case. To have turned out the two or three hulking bachelors is a great relief, though even this is only obtained where the authorities show vigour; but the "family" remain, and at present the law does not interfere with them, unless the fact of the various rooms being let to various families can be made, as in London, to bring the whole house under the 29th section before cited.

After a night among the tenement houses on the banks of the river Tyne, few will come to any other conclusion than that the sort of thing there observed cannot last. People are not now alive to tell us how children were brought up before this age of dense agglomerations of poor began, and he would be a rash prophet who should tell us what future behaviour is to be expected from the present growth of children who, under circumstances probably never before paralleled in this country, are now completing their education for future practice as "dangerous classes," by sitting up half the night with persons of every age, half naked, drunken, obscene, and quarrelsome. Where small houses are the rule, there are tipsy parents, certainly, but the children are upstairs in bed, and there is not that unceasing nocturnal interchange of visits and indefinite sleeping of lodgers in this house or in that, according as intoxication or other passion may chance to detain them.

Beyond the metropolis there was not when this century began a single town in England of 100,000 people, and only five exceeded 50,000; there now are 28 above 50,000. The result of this change is not only that the class of town people is enormously increased, but that the old close-packed little towns are now centres built round on every side, open nowhere to air, and, being no longer agreeable to the rich, are abandoned by them for the pleasanter outskirts. The successors of these rich are occupying the larger houses at the rate of a family to each room,\* and a population, for which the houses were not intended and quite unfit, has been created whose surroundings are truly degrading to the adults and ruinous to the children.

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\* There are said to be 34,000 persons in Newcastle living in single-room holdings.



The following table shows the comparative numbers of houses and persons in the towns visited for the purpose of this report :—

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—

Towns.	1861.		Towns.	1861.	
	Persons per un- inhabited house.	Persons per inhabited house.		Persons per un- inhabited house.	Persons per inhabited house.
Devonport - -	450.	12.04	Wolverhampton -	56.	5.17
Stonehouse - -	796.	11.52	Dudley - -	61.	5.16
Plymouth - -	283.	10.23	Reading - -	157.	5.15
Newcastle - -	281.	7.80	Banbury - -	118.	5.13
Sunderland - -	239.	7.79	Merthyr - -	81.	5.2
Gateshead - -	214.	7.64	Chichester - -	78.	5.03
Cardiff - -	109.	7.11	Birmingham - -	92.	5.01
Berwick - -	161.	7.04	Hull - -	112.	5.
Birkenhead - -	93.	6.93	York - -	98.	4.9
Bath - -	90.	6.55	Sheffield - -	57.	4.85
Bristol - -	103.	6.53	Grimsby - -	140.	4.84
Newport - -	90.	6.34	Nottingham - -	55.	4.83
Exeter - -	178.	6.26	Derby - -	73.	4.79
Winchester - -	105.	6.17	Chelmsford - -	162.	4.72
Southampton - -	91.	6.08	Bradford - -	59.	4.71
Portsmouth - -	157.	5.99	Leicester - -	144.	4.66
Preston - -	302.	5.51	Boston - -	64.	4.58
Swansea - -	84.	5.49	Ipswich - -	97.	4.58
Gosport - -	185.	5.45	Coventry - -	39.	4.55
Colchester - -	132.	5.35	Loughborough - -	52.	4.44
Oxford - -	117.	5.24	Norwich - -	101.	4.37

The figures in the first column serve to show the demand there was for houses. The state of the towns has however changed in this respect since the Census. In Bradford, for instance, the number of uninhabited houses has gone down to next to nothing. The number of persons per house in the three towns which head the list has been increasing for many years.

This table is extracted from the Census report, and applies to three of the sub-districts visited. It will be observed, for instance, that of the 1,343 inhabited houses of St. Giles, S. only 466 are inhabited by single families, while 138 contain in each seven families and upwards.

	Population 1861.	Inhabited houses with one or more families consisting of two or more persons.										Single person in a house.	Inhabited houses.	Families.	Unmarried lodgers.
		One family.	Two families.	Three families.	Four families.	Five families.	Six families.	Seven families.	Eight families.	Nine families.	Ten families and upwards.				
St. Giles, South -	19,483	466	164	154	142	114	120	64	40	13	21	45	1,343	4,209	1,321
Nottingham } Exchange }	8,964	1,518	152	24	9	3	2	—	—	—	—	18	1,726	1,967	363
Upper Merthyr Tydfil	27,478	4,906	409	59	10	1	—	—	—	—	—	91	5,476	5,946	274

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## HOUSES UNFIT FOR HABITATION.

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The powers the public possess to prevent the inhabitation of unfit houses include section 75. of the Towns Improvement Clauses Act, by which buildings dangerous to passengers or to neighbouring occupiers may be demolished. This section does not appear to be intended to protect the inmates themselves, and may be dismissed as not applicable to the present question. Under the Public Health Act of 1848, section 9, medical certificate will compel internal cleaning, but not repairs, and the costly and cumbrous machinery requisite for so small a result makes this clause one seldom pressed to a prosecution even in towns which have adopted the act. The inspector of nuisances uses the clause as a threat, and when the local board will, as at Birmingham, provide lime and brushes, he can usually enforce cleansing, if he has time for a house-to-house inspection. Not unfrequently the materials are provided, as at Bristol, by private charity, and in few considerable places does there seem to be difficulty about so trifling a matter; the difficulty is usually where sufficient provision is not made for regular inspection, and whole streets of houses are laid under dirt through carelessness. In this section it would appear that the medical witnesses, having no right of entry, and having no one to employ them, ought to be tending disease present on or near the premises, otherwise their opinion is but speculative and may be only so accepted by the justices.

Cellars.

Section 66. is part of the law of Common Lodgings. Section 67. deals with cellar dwellings. Certain towns which have not yet adopted the act are still distinguished by the occupation of cruelly unsuitable cellar bedrooms. Some regulation of cellars was in use under local acts, as at Newcastle-upon-Tyne, under section 83. of the Newcastle-upon-Tyne Improvement Act, 1865, where powers uncertain, but formidable when fully administered, are conferred, or at Leeds, where some trifling demand of a window or fireplace was what the act of 1842 contained, and where very few indeed of the cellar bedrooms (the number of which the inspector told me was constantly increasing) conformed with the provisions of the Public Health Act. Liverpool had made a provision against cellar bedrooms a few years before the Public Health Act, of a more certain character, but by far too limited. The cellars which were permitted to remain occupied were to be 7 feet high, 2 feet 4 above the surface, and with an area in front 2 feet wide. These were "passed," and placed upon a register, and are even now exempt from the present law, which exacts the terms of the Public Health Act, mentioned above. When it is considered that cellars or bedrooms, dug out of a soil differing very little from the contents of an ash-midden, are represented (at least in Leeds and Bradford) to be increasing in number, and that on a chance visit by day the floors were seen half covered with beds, and such reports were elicited as are recorded in Part IV., it would seem as if the section 67 quoted should not be left to voluntary adoption, but be made part of a General Nuisance Act. And now, after 20 years' privilege, the time seems to have arrived when all "passed cellars" and other exemptions may be abolished, and the standard of the Public Health Act demanded to the uttermost. Section 8. of the Nuisances Removal Act indeed declares that the word "nuisance" under this Act shall include "any premises in such a state as to be a nuisance or injurious to health." The administration of this and other sanitary clauses by the local authorities varies in efficiency in various places with the strength of the byelaws, the skill, industry, and independence of the officers, and lastly with the presence or want of a medical officer in places

where such an appointment is desirable. A want of uniformity of byelaws and practice in matters common to the whole kingdom is itself troublesome and obstructive, and must mean in each place weakness of the local authorities in some detail considered important elsewhere. It will be found, on reference to the local reports, that the cellar is not a cheap residence, in which it would be cruel to disturb the miserable poor. In Leeds, at 6 Off Street, an unfurnished cellar seven feet two high, the ceiling four inches above the ground, held three adults and three children as their only apartment, and they paid for it 1s. 6d. a week. Again, in the same street, and in York Street adjoining, cellars six feet high, and totally underground, were let furnished with 2l. worth of furniture for 4s. a week each, and were each the only apartment of a family. In another, in the same Off Street, lived six adult regular residents, five of whom were labouring men, whose gross income was not likely to be less than 4l. to 5l. Similar prices were paid at Bradford. In the same county is Sheffield, a town without any cellar bedroom at all, where the increase of persons is at least as rapid, where wages are quite as high, and where the corporate powers are much less influential than at Leeds or Bradford. Here, and in many other places, are numerous small single-bedroomed houses let at 1s. 6d. and 1s. 8d. a week, full of people, certainly, but superior beyond compare to the single-cellar-bedroom tenements of the neighbouring towns. No law prevented the use of cellar bedrooms in Sheffield. The comparison merely shows that a large town can do very well without them. Under the Scotch Act of 1862, sections 352 and 353, provisions about cellar residence will be found.

Other houses may of course be absolutely uninhabitable, besides cellars; but the law has not specified any other conditions under which this may be declared to be the case; so all further administration in the matter depends on the combined or diverse opinion of the skilled witnesses and the justices, acting under the 13th section of the Nuisances Removal Act. Not even can that most hateful structure, a bedroom whose floor forms the roof of an ash midden and dungstead, be condemned on the general ground that bedrooms so placed are *ipso facto* unfit for habitation, but evidence must in each case be given that the arrangement constitutes a "nuisance," and even that evidence has to satisfy the justices on its merits as skilled evidence. In some great towns, however, even where the members of the bench are constantly shifting, repeated decisions have given the inspectors confidence of a conviction in every instance in which the facts of this one great nuisance are proved; but with regard to unfit dwellings, no practice has yet become established as a rule with borough benches on any point but this. The ordinary closing of a house under the section 13. of the Nuisances Removal Act is used with great caution by most justices, and though sufficient to enforce reforms of privies and drains, and limewashing, it cannot be done to prevent overcrowding or the letting of insufficient or unfit single-room houses. There must be "nuisance" to justify action under the section, and a list of nuisances is prefixed.

Other conditions of absolute unfitness remain, but neither law nor rules of benches condemn them. It is submitted that in the same category with cellar bedrooms might be placed (2) all bedrooms over receptacles of human dung, (3) certain bedrooms not originally intended as human habitations, and (4) bedrooms which have no window. To these might be added rooms in the condition proscribed by the Glasgow Act, having insufficient area in front of the windows, or being too

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small for inhabitation even by a single person. Beyond these classes every instance might be subject to skilled opinion.

Byelaws under the Local Government Act have been decided to affect the unfitness of those residences only which have been built since the constitution of the district. The Glasgow Act is less preservative of vested interests. In order to obtain exemption for a bedroom from its powers, proof must be given, not only of having been built before the act, but of having been used as a bedroom. The operation of the Liverpool Act and the practice at Nottingham must be considered in the local reports.

The operation of the local boards of health upon the dwellings of poor people was not retrospective, except in a few named cases, and the good results of their formation, which are now visible, are mostly in proportion to the number of houses rebuilt or newly erected since the application of the act. Extension of towns in England seems to be a certain future, and few exceptions to this rule have yet shown themselves. The earlier the adoption of the act has been the more effects are now visible, and not only in the environs of new growth but in the old centres, for even here the slow sure process of dilapidation leads to a regeneration. It may therefore be believed that in towns under the Local Government Act the number of unfit dwellings is diminishing both in relation to the whole and also positively, and the increase of such towns may be taken to mean their improvement. Having regard to overcrowding as well as to unfitness, there are a few exceptions to this rule which it would seem may be reduced to three cases:— (1.) Where a very large town is placed upon the sea or river, and a poor population finds that improvement means to them removal miles away from their work, which cannot follow them away from the water-side. Liverpool, for instance, has multiplied 16 times in the past century, and the new comers have pressed to the same waterside which found employment for the few original thousands. (2.) Where, especially in a seaboard town, increase is blocked in certain directions through the reservation of property, of which the most remarkable, though not the only instances, are where building is confined by fortified lines. (3.) Where, as at Bradford, the local authority has been thought to be too exacting, and has been met by an obstinate refusal on the part of the capitalists to build houses for working men on the conditions prescribed. Where there are these exceptional local conditions present, the advantage of wide streets and yards, and of low houses, is purchased by the difficulties of long distances and the habits of receiving crowds of smuggled lodgers which follow. With these difficulties local boards have to contend in their efforts, which in large places at least seem always to have been directed honourably to public good. What railways may do for the relief of such cases is yet but an experiment only tried in London, where so far it seems to some experienced persons a hopeful one.

On the passing of the Local Government Act the Government issued a model scheme of proposed byelaws, under the sanction of the act. Among them was this important power in No. 27.

In any case where it is certified to the local board by the surveyor, inspector of nuisances, or by any two medical practitioners, that any building is unfit for human habitation, the local board may, by their order, affix conspicuously on the building a notice, declaring that the same is not fit for human habitation, and shall not, after a date therein to be specified, be inhabited; and any person who, after the date mentioned, continues to let or occupy, or knowingly suffers to be occupied, such building shall be liable to a penalty not exceeding twenty shillings for every day during which the same is so let. Provided always, that if at any time after such order made, the local board shall be satisfied that such house has become fit for human habitation, they may revoke their said order.

This has been adopted by many boards, and so lately as 1865 new byelaws for Sheffield and Sunderland, containing the clause, have received sanction ; but it should be known that although section 34. appears to warrant the bye-law, there is a proviso that no such bye-law shall affect any building erected before the constitution of the district ; and the decision of Chief Justice Erle, in the case of *Burgess v. Peacock* took the whole strength out of the bye-law ; for it is very improbable that houses erected under the rule of the board can be by the same authority declared uninhabitable when finished. The bye-law can only meet cases where a house has been erected in defiance of local authority. Still process against an old house under this bye-law is not unfrequently successful where the above quoted decision is unrecognised or unknown.

The Diseases Prevention Act is only to be put in force by Order in Council, under the circumstances of serious danger of epidemic disease. It is administered by the guardians of the poor, probably because they have a staff of medical officers. The act empowers the authorities to make a house-to-house visitation, and although it does not prescribe the purpose of such visitation, the power facilitates the execution of the law against overcrowding and internal filth. This power was being exercised at Leeds, where, the corporation being otherwise engaged, the administration of the removal of nuisances had fallen to the guardians, who administered under the fiction of the Diseases Prevention Act being in force. They sent inspectors all round the township daily and nightly, who prosecuted to conviction instances of overcrowding and internal filth. The guardians found plenty of useful work in dealing with the underground cellars and crowded houses to the extent of their supposed powers, and one could have no feeling but of regret that these powers had so little of substance.

Except the Scotch Act of 1862, the local acts, which are stronger to deal with this matter of unfit dwellings than are the general statutes, are confined to Liverpool and Glasgow. Sometimes the power which a local authority has to make new streets may be used advantageously for the destruction of "rookeries ;" but this is nowhere the overt object of such improvements, except at Liverpool, where a process of destruction of evil-doing buildings, and occasional erection of privies in place of those destroyed, is going on, guided by sanitary reasons only, and administered in the main by the medical officer. A gentleman of upright principle and sober judgment, thus practically left to himself, selecting here a bit and there a bit, uncorking mouths of courts, opening ends to alleys, gutting ancient yards of a crowd of new buildings which modern pressure has caused to be put up in the small space which had been originally left for air, destroying the numerous ash-middens or cesspools with which a small proprietary always encumber a town, and substituting a few small trough waterclosets, will secure to a town, by slow annual process well matured, infinitely greater results for any given sum than if the buildings to be purchased were previously described by an act of Parliament, suggesting magnificent schemes and enormous prices. For the success of such a measure a town must have confidence, and must employ an officer of integrity above suspicion, and one, moreover, who will indulge no dreams of architectural symmetry, but look to the one object of disembarassing the most miserable parts of the town of such buildings as are not only of themselves unfit for human habitation, but the removal of which will give air to the greatest number of those who are gasping around. How this has been begun in Liverpool is described in Part II. ; but as it is to a certain extent a measure of destruction and diminution of men's houses, the

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act must not be accepted as successful without consideration of the immediate necessity of a new supply under the Labourers' Lodgings and Dwellings Acts. As with Liverpool, the general act in Scotland has not yet been put to the proof by the completion of the experiment. The sections having influence over unfit dwellings are to be found in the local report on Scotland in Part II.

It must again be remarked, with reference to unfit dwellings, as has been done with the subject of overcrowding, that there seems to be in the general law a want of some exact principles, such as are found in the Glasgow Act, by which the administrators may be guided as to what is an unfitness of dwellings sufficiently dangerous to call for public interference. With the exception of the cellar clauses, the matter is now left entirely to local and shifting judgments. The opinion must again be expressed, that the evils which are possibly within reach of amended law are not of that magnitude which should overawe legislation. As with overcrowding, so with unfit dwellings, it is chiefly in towns of single-room lettings that fixed rules are needed to be applied, and that the law, when adopted, proves insufficient for relief in the bulk of the instances. Of all the places visited in England, only London, the towns of Plymouth, the towns of Newcastle with Gateshead, Sunderland, Cardiff, and Berwick, contained an average of seven persons to a house. In parts of London and some of the towns the state of the single roomed tenements is sickening; the state of the people most pitiable. But this can only be said of a few towns, and only of parts of those towns. It is not too much to say that life in parts of London and Newcastle is infernal; and as our countrymen are probably much the same everywhere, the cause of the evil must be sought in the surroundings. Analysis of what these are, and rejection of those, which, though probably injurious, are common to all towns, reduce the matter to the single-room tenements, and these are firmly believed to be the cause of the disease and wickedness which prevail where they are found. Both on account of their own unfitness, and of their tendency to encourage and protect overcrowding, these houses, not numerous in proportion to the whole country, but of deadly injuriousness wherever they exist, call for extended and exact legislation, and a vigorous and independent spirit of administration in the places cursed by their presence.\*

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\* Any lengthened speculations on the future supply of houses in places where strong measures may be adopted to prevent overcrowding and the use of unfit dwellings, and where, therefore, the demand will be much increased, are not here necessary. The slow but sure working of the Local Government Act affords some hope as to the future; but, on the other hand, the instance of Bradford should be consulted of showing even that to fail sometimes. The Labourers' Dwellings Act was nowhere found in operation; and it is believed that no considerable local authority, except that of Huddersfield, has yet made use of the Labouring Classes' Lodging Act.



## PART II.

## NEW MODES OF ADMINISTRATION TRIED IN SCOTLAND, GLASGOW, AND LIVERPOOL.

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## SCOTLAND.

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The following are the special provisions in the Police and Improvement Act (Scotland), 25 and 26 Vict. c. 101., applicable to the present inquiry.

Sect. 80. is to cause inquiry with a view to putting the act in force in places where the mortality exceeds a certain proportion, which however varies with the population of the place.

Sect. 161. enables the commissioners to acquire premises for sanitary purposes. When houses are in the opinion of the commissioners *built too close to each other*, or have become waste and ruinous, or are liable to other objections on sanitary grounds, it shall be lawful to acquire the premises for the purpose of *reserving them as vacant spaces*, or of improving the buildings, or otherwise disposing of them.

Sect. 238. Buildings ruinous and dangerous to passengers *or to the occupiers* to be taken down or secured.

Sect. 242. Buildings allowed to continue in a ruinous state through want of consent among the joint owners may be sold, and the rights of each owner valued for repayment. (This clause will provide against the shufflings of the owners of short ends of leases.)

Sect. 247. If buildings have become ruinous, or receptacles of filth, or unsafe and unfit for occupation, the commissioners may require the same to be rebuilt or repaired, and in the event of non-compliance may sell, and repay.

Sect. 352. requires that every cellar let for inhabitation shall be 7 feet high and one third of its height above ground, with an area 2 feet 6 inches wide, a glazed window made to open, and other qualifications. Cellars in courts are not to be occupied; but a special appeal to the sheriff is allowed.

Sect. 356. The inspector may enter dwelling houses, and remove *accumulations of filth*, at the expense of the *owner*. (This clause may enable the officer to clear away filthy bedding, and gives primary recourse against a responsible owner. The expense is to be recovered "as any debt.")

Sect. 443. The eleventh clause of the Nuisances Removal Act for Scotland is amended to this extent:—The owner of any inhabited house which has been rendered unwholesome by its being overcrowded, *as the author of such nuisance*, is to limit the number of separate dwellings into which common tenements may be divided or let for the use of separate families, and the number of persons who may be accommodated in such common tenements, or such parts thereof which may not be let for the use of separate families; and the word "nuisances," under the act, shall include any overcrowding of an inhabited house or any part thereof insufficient in size for the number of inhabitants.\*

It appears as if, with a good administration, nearly all the advantages of the Liverpool and Glasgow acts are obtained by sections 161 and

Crowding  
held to be a  
nuisance.

\* Provost Lindsay, the author of the act, did not think any instance of overcrowding had been brought to judgment under this clause.

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443. It certainly cannot be pretended that the three experiments, viz., the Scotland, the Glasgow, and the Liverpool acts, are yet complete, or that long trial has confirmed the wisdom of the acts; still it is worth recording that the Glasgow corporation is reported to be anxious for a renewal of the act, and the Scotch general act has now (26th August 1865) been adopted, either in whole or in part by the following list of burghs and places:

Leith.	Musselburgh.	Tranent.
Prestonpans.	North Berwick.	Dunbar.
East Linton.	Alloa.	Dunfermline.
St. Andrew's.	Crieff.	Forfar.
Broughty Ferry.	Nairn.	Tain.
Lossiemouth.	Peterhead.	Inverness.
Dufftown.	Wick.	Stornoway.
Hamilton.	Biggar.	Rutherglen.
Govan.	Paisley.	Kilmarnock.
Galston.	Ormadale.	Dumfries.
Locherbie.	Moffat.	Lochmaben.
Stranraer.	Selkirk.	Kelso.
Galashiels.	Peebles.	Edinburgh.

## EDINBURGH AND LEITH.

EDINBURGH  
AND LEITH.

Common  
lodgings.

The new Scotch Police Act can be adopted either in whole or in part, and is only with reference to privies adopted in Edinburgh. There seems to be fear lest its adoption should endanger some civic privileges, and a new local bill now in preparation will probably be preferred. The important clause against overcrowding (sect. 443.) is not adopted, and what local law there was did not seem to give Dr. Littlejohn, the medical inspector,\* much power. Overcrowding is, however, controlled by the administration of common lodgings, which is entirely in the hands of the police, who are empowered by the Edinburgh Act of the 11th and 12th Vict. The definition of a common lodging house is obtained from the 199th section, and depends on *reception for a night or other short period*. The act is hardened by the byelaws, which contain these words, "That in lodging houses or " other apartments for the accommodation of labourers, mendicants, " and other such persons, for the night or other short period, the " space to be allowed for the accommodation of each adult person " shall in no case be less than 12 cubic yards."† The byelaws go on to provide for the details of administration in terms much the same as in use in England. The police surgeons pay the houses occasional visits; but the responsible inspector is Lieutenant Maclaren, whose sergeants visit all the houses every Saturday. They also visit suspected houses by night to such an extent that the act may be considered to be in Edinburgh reasonably fully applied. There have been a few prosecutions founded on these visits. The result is that 395 tenements, of 1,132 apartments, and receiving 2,564 lodgers, are brought under licence. These establishments are most numerous in the districts of St. Giles and the Grass Market, and are most wanted in these localities. They are not so good as they should be. It is not exactly that the officers neglect

\* Dr. Littlejohn is not called medical officer. He is chief medical officer of police and professor of forensic medicine. His report for 1865 contains a multitude of curious facts about Edinburgh.

† 324 feet.

to enforce the necessary conditions of the regulations, as is in part shown by their having refused a number of licences, but that the standard of comfort is fixed too low. It would be unfair not to admit that the standard demanded by the authorities should and must bear some relation to the average degree of comfort found in the labourers' houses of the country; and this average seems lower in Edinburgh than in great English towns. Moreover, a stranger must not too confidently say that this or that condition, of which he has not had personal experience, is bad. Still, looking at these houses and all their equipment with eyes accustomed to English poverty, one cannot resist the impression that they are thoroughly uncomfortable and unhealthy. The houses were thronged with old furniture; the windows were too often shut, and the habits untidy. The owners did not seem well acquainted with the numbers they might receive, nor with the other regulations. There were some good houses; such was Brannan's in the Grass Market; but on the other hand many were necessarily and permanently bad, as well as badly conducted. At F—'s, in the Cowgate, for instance, the rooms were most miserable; had borrowed light, and so little that gas was burning all day. At McI—'s the kitchen contained 5 beds, and sheets were said "not to be a customary thing." The Metropolitan Lodgings, and the Victoria Lodgings for single women only, are large public establishments. The beds are here good. Secluding partitions are not in use.

The system pursued in Scotland, of building lofty houses to be divided into many separate tenements, need not be here described; but a few instances of the results of the system, extracted from Dr. Littlejohn's report, will exhibit the evils with which the sanitary administration has to deal. Gowanloch's Land was a house of 8 flats, the ground measuring 292 yards. It contained 60 rooms, 39 families, and 134 persons, and had 3 sinks and 3 waterclosets. 8 Cowgate, with 60 rooms, received 179 persons, and had 2 sinks and 1 watercloset; area 365 yards. Middle Meal Market Stair, with 59 rooms, received 248 persons, and had neither sink nor watercloset; area 400 yards. 341 Cowgate received 170 persons in 53 rooms, and had neither sink nor watercloset; area 250 yards. The passages are described as dark and ill ventilated; the rooms rickety, small and overcrowded. "Separate" houses have undergone repeated subdivisions until the present state "of overcrowding has been attained."

Of late years joint stock companies, and gentlemen moved by public spirit, have endeavoured to mitigate the horrors of Edinburgh poverty, by providing well built houses for the poor. These buildings are often by far too high for the width of the street, but as a rule they may be said to be suited to the people. Some of them pay the projectors well, others but badly, but all ask such rents as to preclude their use by the poor, unless by means of that combination of incomes which is the very life and soul of the overcrowding system. Although nominally in two of the 16 blocks of building apartments may be had for 3*l.* a year, there are really very few such, and the rents may be fairly quoted at from 6*l.* 10*s.* to 9*l.* Nearly all, however, have the ordinary accommodations which ought to distinguish the life of an Englishman from that of a savage, and in that respect the inhabitants are better off than those of some of the old properties, which are said by Dr. Littlejohn to be more crowded than ever.

So far as a miserable ruinous condition of a large house, cut up into numerous box like rooms of all shapes and positions, lighted by borrowed light and accessible by long dark passages and staircases, all affording difficulties of cleaning to a population singularly tolerant of dirt, can

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Modes of  
Administration  
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Small tene-  
ments.



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make a place unfit for human habitation, such unfit places may be found in great number in Edinburgh. Of houses where people live over cow-houses there are about 163, and these might perhaps be condemned, until the cows (nearly 2,000) were removed. But as to another class of dwellings there should not be a moment's doubt of the propriety of closing them for ever. These are the cellars. There are many; some have no window; in some it will not open; they rise less than a third above ground; they have not always an area; they contain beds "concealed" in alcoves; and are very high rented. One, for instance, which was visited in Blackfriars Wynd, was only one room, 6 feet 6 high, containing 2 beds, yet the rent was 2s. a week. In this neighbourhood, however, it is perhaps not safe to quote rents, as they sometimes depend on the custom attached to the place as a brothel, for which purpose extraordinary rents seem to be paid for a cluster of mouldy garrets.

Edinburgh thus exhibits one of the strongest instances of an old city of high houses crowded on a small area, and let by the room to as many people as they can hold, with the result,—a mortality and degree of unhealthiness which is very high, and which finds its principal development in the seats of the densest population.

## LEITH.

At Leith the Scotch Police Act of 1862 is adopted in full, and an inspector of nuisances and lodgings is appointed. Nothing has been done by public effort to supply houses to the poorer people, and experienced men think that private enterprise would quickly supply good houses if a demand was to be created by the closing of all the unfit habitations. Many tenements in Leith are of one room only, and many of two only. An average room may be taken to be 10 feet by 10 by 7, and in such a one will sometimes live a party of 10 persons. The act, as being a novelty, was being very gently applied, and such cases had not yet been brought under law, nor had the cleaning of the common staircases been yet enforced. One information only had been laid against a crowded house, and the process had not matured in August 1865. The charge went against the number of rooms used as bedrooms in one house; not against the number sleeping in any one room. The house was of five storeys of 12 rooms each, on one staircase, and the number of inhabitants was 180. The board having to deal with a population so circumstanced must needs be slow, but they are getting on with the introduction of upstairs waterclosets; a decidedly smaller nuisance than that which they are meant to supersede. The provost very justly remarked that in case of the visit of epidemic disease the machinery of the act could at a short notice be put into operation, and that meantime the dread of it had a salutary effect. Still one would have liked to have known, from a case or two, that the strong clauses in the act were sure to carry through a court of law. Some difficulty may be anticipated in proving the crowding in the instance mentioned above to be a nuisance, for medical testimony may possibly be rebutted by combined evidence of all the inhabitants, who are the persons who in the first place must be supposed to suffer from the nuisance. At Leith the magistracy will probably not be turned aside by the unwillingness of these people to have their own benefit consulted; but favourable decisions must not be surely reckoned upon everywhere.

Common  
lodgings.

The common lodgings regulations are not yet brought into force; there was no list of common lodging-houses, and it was supposed that none such existed, but examination soon showed some in Giles Street and elsewhere. The definition of a common lodging here was

that laid down by the Scotch Nuisances Removal Act, and hinged on price.\* The space demanded was to be 12 cubic yards.

A few well-authenticated details about Leith will probably apply to many of the prosperous towns of Scotland. Houses were scarce. The class of houses offered to be let were from 12*l.* to 20*l.* a year, and the landlord would hold them empty rather than see them degraded into single-room tenements. The few small self-contained houses were reputed damp, cold, and poorly finished; substance and value were thought well laid out in building even for the poor. A steady man with 20*s.* or 22*s.* a week seldom lived in less than two rooms, and would pay a rent of 6*l.* to 8*l.* A tenement of a kitchen 14 feet by 14, with a bedroom 12 feet by 12, part of a great house, was let for 7*l.* 10*s.*, paid half yearly. A room and closet, 5*l.* 5*s.* A room in basement, 4*l.* 4*s.* Single garrets, 3*l.*, 2*l.* 15*s.*, and 2*l.* All these rents were inclusive of water, and not above 5 per cent. of these sums was lost. The Leith factors collect for absent proprietors at 5 per cent.

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## DUMFRIES.

At Dumfries also the Scotch Police Act of 1862 was of too recent and incomplete introduction to afford much information as to its working. No byelaws have yet been framed under the Act. A house-to-house visitation now going on will give data for their construction in the matters of overcrowding and unfit dwellings. The superintendent of police was inspector of nuisances and of common lodgings; a common arrangement in Scotland where there is no Common Lodgings Act, but the lodging houses are controlled under the Nuisance Removal Act of 1856. The regulations respecting such houses are printed, and contain the usual Scotch definition, "*where lodgers are housed at an amount not exceeding 3*d.* per night for each person whether the same be paid nightly or weekly.*" There was no cubic minimum of space expressed in the regulations; this was left to discretion. With this exception, they were good enough. But in the only house I visited the majority of the regulations were set at defiance in noon day. Mrs. S.'s had seven beds for 14 persons who paid 3*d.* a night, or 1*s.* 6*d.* a week. The house was a ground floor only, with a stone pavement throughout, below the level of the ground outside,—dark and rough. On measurement I found only 150 cubic feet of space per head. The windows were closed. There were not the usual tickets and utensils. A cart came round every morning to carry away the contents of the pots where there were any. There were about 12 such houses with about 10 beds each, and S.'s was represented to be an average specimen. The house was dirty, and showed that the regulations wanted strict administration, and that night visits and exact measurements will have to be introduced before moderate comfort and decency can be attained.

DUMFRIES.

## GLASGOW.

The only local act of much importance in Scotland is at Glasgow. The Glasgow Police Act, 1862, is to continue in force five years. It provides that the local authorities may use the Act instead of the Nuisances Removal Act for Scotland. wherever its use will conduce to economy and despatch.

GLASGOW.  
The Act.

\* 3*d.* a night, paid nightly or weekly.

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Overcrowding.

Unfit houses.

Extraordinary  
powers.

By section 256 the medical officer is directed to point out parts of the city which require sanitary amendment, and to propose the necessary measures.

By sections 257 and 260 the authorities, on receipt of the medical officer's report, can, with the consent of the Privy Council, declare special sanitary regulations to be in force within certain districts. The nature of these regulations is to be found in section 261, and among them is that "for preventing the overcrowding of private dwelling houses, by fixing the maximum number of persons who shall live or be lodged therein, in the same way as is herein-after provided with reference to lodging houses."

Section 266 professes to define the expression "lodging house" to be a building "*in which any person is lodged by the night or other short period, at a rate for lodging not exceeding 6d. per night, or at a rate for lodging and boarding, or part boarding, not exceeding 1s. per night.*"

Section 375 provides that it shall not be lawful for any person to suffer to be used for the purpose of sleeping in, any apartment unless one third of its height is above the level of the ground outside, and unless there is some space in front of the windows proportionate to the height of the buildings. A fine is provided; but certain exceptions may be pleaded, and a register of excepted apartments is ordered to be kept. The exceptions are all unimportant but the last, in which are included all rooms which were in use as sleeping apartments before the passing of the act. The claims to exemption are not admitted without a sifting by the very acute master of works.

The important clauses which give a peculiar and exemplary character to the act begin with section 384, and are, abbreviated, as follow :—

Sect. 384. It shall not be lawful for any proprietor to let, or for any person to take in lease, or, after the 28th May 1863, to use or suffer to be used for the purpose of sleeping in, any apartment in which there is not at least one window, or in which each window is not so constructed or hung as that at least one third of it may be conveniently and easily opened, or in which the sash of such window, or the sashes of the several windows therein, are not of the dimensions herein-after provided, viz. :

If the said apartment contains less than 2,500 cubic feet of space, unless the sash give a superficial area in the proportion of one foot to every 100 of such cubic feet :

If the said apartment contains more than 2,500 cubic feet of space, unless the sash give a superficial area in the proportion of one foot for every 150 of such cubic feet.

Sect. 385. It shall not be lawful to let or to take in lease, or after 28th May 1863 to suffer to be used as a separate dwelling, any building or part of a building, which, exclusive of lobbies, closets, or presses, is not of the following dimensions, namely :

If such dwelling house consists of only one apartment, and was used as a separate dwelling house previous to the passing of this act, unless it contains at least 700 cubic feet of space, or if it was not so used unless it contains at least 900 cubic feet of space :

If such dwelling house consists of only two apartments, and was used as a separate dwelling house previous to the passing of this act, unless it contains at least 1,200 cubic feet of space, or if it was not so used unless it contains at least 1,500 cubic feet of space :



If such dwelling house consists of only three apartments, and was used as a separate dwelling house previous to the passing of this act, unless it contains at least 1,800 cubic feet of space, or if it was not so used unless it contains at least 2,000 cubic feet of space.

Sect. 386 provides penalties for letting or using apartments in contravention of the act.

Sect. 387. It shall be lawful for any person appointed by the board from time to time to enter any dwelling house which consists of not more than three apartments, for the purpose of measuring in cubic feet the space contained therein, exclusive of lobbies, closets, or presses, and to mark on or over the outside of the door if the cubic contents do not exceed 2,000 feet, or to affix thereto a ticket on which are marked the number of such cubic feet, and the number of persons exceeding the age of eight years, who, without a breach of the provision next herein-after contained, may sleep therein; and any person who defaces such ticket shall be liable to penalty.

Sect. 388. If any dwelling house which consists of not more than three apartments is used for the purpose of sleeping in by a greater number of persons than in the proportion of one person of the age of 8 years or upwards for every 300 cubic feet of space, or of one child for every 150 cubic feet contained therein, exclusive of lobbies, closets, and presses, or by a greater number of persons than is marked thereon in pursuance of the provisions herein-before contained, every person so suffering it to be used shall be liable to penalty.

By sect. 389, when a building is ruinous and dangerous to the inhabitants, the surveyor may cause them to remove; and by sect. 391 waste or ruinous properties may be sold by the authorities, and the proceeds divided among the owners.

It does not appear that in the Glasgow Act the owner is made so directly responsible for overcrowding as under the General Act. The sects. 263 and 264 relate to the owner executing works, but not abating crowding, while sect. 265 appears to bring under fine the occupier only.

The condition of the Glasgow poor was always bad. They were of dirty habits, and want of room deprived them of the means of reformation. Houses had been destroyed in Glasgow, but others had been built up, intended for the poor, and not of so capacious or convenient a character as the old. Here, as too often in large agglomerations of men, the experiment of providing more room had failed even under the favourable conditions (which must always be exceptional) of a gratuitous supply. Poverty induces filth, and one of the commonest forms of filth is the love of close companionship. It was not until charitable effort had been balked by the character of the people that an act was applied for, which had not for its object the extension of the accommodation, but rather the increase of the demand for accommodation then dormant, by routing out colonies of people who were ruining each other, body and soul, through permitting an unnaturally constant observation of each others doings, and contact with each others persons.

The ample powers given to the Glasgow corporation are carried out by Dr. Gairdner, the medical officer, Mr. Carrick, the master of works, and Captain Smart of the police. In addition to Dr. Gairdner, sanitary objects have the services of Dr. McGill and the four

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cal officers.*

other surgeons of the police, who act each in his own district. These officers, although to some extent having concurrent jurisdiction over the same class of evils in the same localities, work harmoniously, and their action, stringent as it is, is now accepted by the inhabitants of nearly all classes as beneficial.

The police surgeons visit all localities in which there is a prevalent epidemic disease, of which they have received warning from their assistants or from the officers of public charities. These visits lead to cleansing, for which the corporation will in poor neighbourhoods pay. Whenever necessary, the police surgeons call in the chief officer, Dr. Gairdner, and he, if he considers the condition of affairs sufficiently urgent, puts in force the sections 256-61 already quoted, thus declaring a sort of state of siege within a defined district, where he can exercise great additional powers. The reports of the visiting medical officers or police surgeons to their chief do not necessarily lead to invocation of the above-mentioned sections. The chief deals with cases (such as want of water) where the authority will have to negotiate with the landlord, or to recommend structural changes. He licenses new applicants for keeping common lodging houses. He from time to time submits to the master of works instances which his department has discovered of persons whose poverty of accommodation brings them within the terms of sections 384-389, which are administered by the master of works. It may be observed here that the present able medical officer does not consider that the cubic space named either in the Glasgow Act as proper for private houses, or the 12 cubic yards of the Scotch lodging-house law sufficient, although he is obliged to take them as his guide. But it must not be inferred that he has dealt with the matter in an inconsiderate doctrinaire sort of way; on the contrary he is generally thought responsible, and probably will not disclaim the responsibility, for the numerous exceptions made in favour of single persons or of old couples, who had made what they intended to be their permanent resting place before the act, and are allowed to live out their term, on conditions very different from what will be allowed to their successors.

Dr. Gairdner's reports, like those of the metropolitan officers of health, teem with instances of overcrowding and of wretched accommodation. The instances have this peculiarity, that nearly all are breaches of the law which have been since remedied. In July 1863, Dr. Gairdner reports that at 285, Argyle Street, is a house of 72 rooms, nearly all of which are separate tenements, and that some such, containing only 600 cubic feet of air, are occupied by 4 or 5 persons. He then describes the unreformed state of the Rookery, relating how rooms of 497 cubic feet received 3, 5, and even 6 persons as their only habitation. In October 1863 he relates the advantages of a purchase by the corporation of some old and neglected property, by means of which hundreds of people were routed out of a small group of houses. At 65, Bridgegate, lived a whole family in a room without a window. At 103, Gallowgate, 5 persons were ill with fever in a room sunk below the level of the close, without a window of any kind, and damp, dark, and noisome. At 47, Coalhill Street, a room of 800 feet was the sole habitation of nine persons. At 14, Broad Street, 3 persons occupied a room little more than 5 feet in each direction. In their proper place in Dr. Gairdner's reports, but not necessary to be extracted here, are frequent instances contributing to the evidence that at Glasgow disease is the constant guest in houses so constructed and so inhabited.

The Glasgow Act provides against the crowding of persons in a house; the Liverpool Act against the crowding of houses on the ground; and both are retrospective in action, running in the face of vested interests; though in the Liverpool case giving compensation, and in Glasgow none. As far as they have gone, both acts may be considered as successful. Instances were abundant where misery was plainly traceable to badly constructed houses as the cause, and not a few instances were shown where the greatest benefit had attended the application of the extraordinary powers of the act. It is but a small part of the services of Mr. Carrick to carry out the clauses against overcrowding, and it is done well. The vast edifices with which he has to deal did until lately really swarm with people. Old Glasgow was originally set out in narrow lanes of one or two storeys high, the high houses of the front streets being the residences of the wealthy. The lane, always too narrow even for cottages, became (as may even now be seen) simply intolerable for human existence when the cottages rose on the original sites to be houses of 5 or 6 storeys.\* The cottages had no yards, and the houses have often none. The cottages had no privies, and the houses have often none, though the population is fivefolded. As to want of outlet, the sight of yard-arms projecting from the bedroom windows of the narrow streets of the northern cities, and the petticoats and linen hanging from them, are really so many flags of distress, for upstairs washing may be taken as the signal of the residence of a miserable people, a mark at once of single-room occupancy and of incomplete cleaning. As to the other want, education in the use of closets, such as is given in Welsh schools, is wanted in Glasgow. There are some public closets cleaned by the corporation, but very few regular domestic closets, and the lanes suffer for the arrangement. The master of works despairs of these localities. The application of the act may much reduce the population, though in such warrens it is very difficult, as the people habitually stay out visiting or drinking until the police have finished their inspection; but nothing short of a Liverpool act can cure the main evil. Relief is expected from the demolitions of a coming railway; but this will not be enough. Between the Saltmarket and King Street, between High Street and Shuttle Street, and between Stirling Street and Bell Street are three masses of chambered stonework, where the population sleeps respectively 670, 880, and 954 on the statute acre,† measuring to the centres of the bounding streets. Were the front houses in these good streets excluded from the quotation, the space occupied by the poor in the back alleys would be densely covered indeed. Glasgow houses are immense in size and solid in construction; but in this noble looking city there are 35,000 tenements at rents below 5*l.* a year, the average rent of them being but 3*l.* 12*s.* 6*d.* There is another 35,000 of houses above 5*l.* but below 10*l.*, and their average rent is but 7*l.*

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—  
Powers and  
field of duty of  
Master of  
Works.

\* Pipe House Close was an instance, with five-storied houses and 1,400 persons, in a lane 14 feet wide at the widest part.

† The ground plot here alluded to is of about 10 acres. The following are the rates of the density of the population of cities of Great Britain and Ireland:—

Liverpool	- 93·3	Dublin	- 66·9	London	- 38·7
Glasgow	- 83·7	Edinburgh	- 42·5	Bristol	- 34·5
Manchester	- 79·1	Birmingham	- 41·9	Leeds	- 10·4

The boundaries of these places are, however, merely political, and by no means represent the area of continuous building. For a whole parish Sunderland, which is said to carry 176 persons on the acre, is one of the most populous; but the small parishes within the metropolis are the highest on the list.



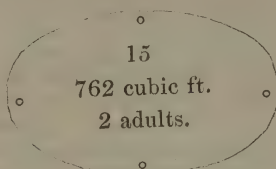
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The remainder, only 20,000 of the whole, are above the value of 10*l.* Houses had been destroyed for various purposes here and there, and the result had been the overcrowding of the next convenient spot. The number of houses to be let was rather considerable, about 2,500 of the class under 5*l.*, yet it was only by vigorous inspection that people could be induced to spread. There seemed to be plenty of new building on the south side; hundreds of handsome exteriors were made up of tenements of two rooms each, let at about 7*l.*

The number of houses of less than four rooms ticketed under the 387th section in the two years which had elapsed since the commencement of the system was 13,007. In ticketing the above number, 1,013 dwelling houses were found to be under the minimum size of 700 cubic feet prescribed by section 385. The ticket was of tin, and with the inscription was in this form,—



Besides a little inclination to humour old occupiers, there is in operation an impediment in the practice of these persons slipping out of houses not large enough to be ticketed, and getting the house relet to new comers without discovery. Several persons, owners as well as tenants, have been convicted, and the practice will doubtless soon wear out; but there seems a little defect in the act, in that it gives no power to mark as uninhabitable those rooms which do not come up to the standard required. It is said that there are now no unlawful cellar bedrooms; but some of the undersized remain. There is not much difficulty in a landlord throwing small apartments together, as the small houses are only parts of a big one, and are easily rearranged; and as regards the rent, the tenants, as was universally stated, and may be believed with confidence, are nearly all of them well paid but extravagant persons, who care nothing for good lodging, but who can well spare a little rent out of their drink money. Men with 2*l.* a week customarily paid but 1*s.* 6*d.* a week in rent; and the instance may be recorded from Dr. Dunlop's experience of a bachelor, who earned 30*s.* a week as a lumper, yet only paid 6*d.* a week for his lodging. "What do you do with the rest, Patrick?" "Sir, I drinks it." Indeed from one point of view crowding in Glasgow means the diversion of income from rent to supply whiskey.

A place called the Rookery was a good instance of the remodelling a great house. It now contained about 80 good single-roomed tenements, all ticketed, and let at 6*s.* 6*d.* to 7*s.* a month. Since the ticketing, with its attendant cleaning and destruction of dirty holes and corners, the rents had been raised to all new-comers, and some rooms in this place, which in former times was the trite example for all that was bad, are now among the cheapest and pleasantest in the city. Difficulty of course arises where these large houses are in different freehold ownerships, and makes especially valuable in Scotland the clauses of the General and Glasgow Acts about dealing with separate owners of one house. A ticketed house is still often very bad.

The floors and party walls may be rough and rotten, or the chimney may smoke; but it is not very plain how any quality can be brought under fixed rule except (1) size with ventilation, and (2) cleanness. Other disqualifications seem at present to defy law. Among them is the unsuitable custom of having "concealed" beds, fixtures in law and in fact, placed in alcoves, often with doors, and inaccessible to broom and brush.

The Glasgow byelaws for the regulation of lodging-houses contain a few unusual provisions:—No. 5, forbids the drying of linen in the bedrooms, and even the ropes "whereon clothes may be suspended." No. 6 says, "The bedsteads . . . shall be in the form of camp-beds, "without posts for curtains or bed hangings, and no bed curtains "or window curtains or hangings shall be used therein." No. 9 orders that the maximum of adults to be received shall be painted up on every room door. No. 11 forbids adults of different sexes from sleeping together, without exception in favour of married folks.

Captain Smart and the police visit the common lodgings, and have the responsibility of their inspection. Some of the lodgings are in ticketed houses, and are therefore small. Such a house might perhaps have two rooms, and be let at 7*l.* or 8*l.* Where houses have been found crowded the offenders have been brought before the justices in large batches, and a nominal fine has been inflicted, but none have been committed, and no costs attend the infliction of the fine. The number of lodging houses is unfortunately insignificant, there being only 292 rooms for 1,080 persons, which can bear but a small proportion to the requirements of a city of nigh half a million persons. The short abstract of the laws given above must be referred to as to the way in which these houses are conducted. As a rule they were, though better than those at Edinburgh, inferior to the English average. The ticketing system rather supersedes the necessity of the registration of lodgings in small houses, and the registry by the police might well be confined to houses above the ticketed size, among which doubtless numerous lodgers may be found. There is a large model lodging-house for women, and several for men, for instance, the Greendyke lodging-house, which are not registered. These large establishments had permanent partitions between the beds, and seemed well conducted. They must answer well, for many persons are nightly turned away through the house being full.

The police are also engaged in a continual house-to-house inspection of small houses, making regular reports of their results. One such report is extracted from the series, and presented here as a sample. One might have been presented where a street ticketed for 69 adults was found on a night inspection to receive 87 with 26 children, or another where 52 houses licensed for 154 received 186 with 64 children.\*

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Poor in Towns,  
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Modes of  
Administration  
tried in Scot-  
land, Glasgow,  
and Liverpool.

Common  
lodgings.

Crowding  
found by police.

\* This visitation is only lawful when made at "reasonable hours," and this limit must necessarily affect the result, the more as the customary use of concealed beds hinders observation.

## APPENDIX.

B. Division.

## CITY OF GLASGOW POLICE.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

Report of Inspection of Small Houses in No. 9, M'Alpine Street which have been measured and marked under the 387th and 388th Sections of the "Glasgow Police Act, 1862."

8th July 1865.

Modes of  
Administration  
tried in Scot-  
land, Glasgow,  
and Liverpool.

Number on Ticket.	Number of Rooms in House.	Cubic Feet.	Name of Occupier.	Number of Adults marked on Ticket.	Number of Persons found in the House on Inspection.		Excess.		Factor or Landlord's Name and Address
					Above 8 years.	Under 8 years.	Above 8 years.	Under 8 years.	
6	1	744	William Graham - -	2	2	2	—	2	John M'Indoe, 40, Brown Street.
9	2	1661	Hugh M'Kie - - -	5	6	4	1	4	
1	1	1159	George Smart - - -	3	3	3	—	3	
	1	790	Henry Scott - - -	3	3	1	1	1	
18	1	819	Robert Hogg - - -	2	2	2	—	2	
23	1	882	William Evans - - -	3	3	3	1	3	
24	1	807	James Grant - - -	4	—	—	—	—	
26	1	876	John Menzies - - -	4	—	—	—	—	
27	1	816	Hugh M'Lachlan - - -	5	2	2	—	2	
28	1	803	Daniel Docherty - - -	2	2	2	—	2	
33	1	885	Michael M'Cann - - -	4	—	—	—	—	
34	1	782	James M'Laren - - -	4	—	—	—	—	
35	1	833	John Pearson - - -	4	—	—	—	—	
36	1	804	Lachlan Fletcher - - -	4	—	—	—	—	
38	1	884	Joseph Bond - - -	5	1	—	—	1	
				34	55	24	21	24	
Houses visited and found									
Correct - - -									
Incorrect - - -									
Empty - - -									
Total - - -				38					

Inspected by Sergeant Colquhoun.

J. H. NELSON, *Superintendent*,  
B. Division.

## Outskirts.

In the outskirts of Glasgow are old villages, such as Camlachie or Bridgeton, which contain small "self-contained" houses. Camlachie, though within the city boundary, was not yet ticketed, because it was only now re-peopled after a temporary desertion. It was much like an English mining village. There were a quantity of little houses let at about 3*l.*, all single-room houses, sometimes one above another, with outside stairs, affording a strong contrast to the grand blocks of the city, but having none of the advantages of a country cottage. Bridgeton was better; here, on account of the distance from the centre of business, a room and kitchen of decent construction might be had for 5*l.* Here were not the evils of common ownership of great buildings. The proprietors were small and distinct, and the majority of the houses only two storeys high.

At Glasgow there is seen, under the favourable circumstances of a rich population and cheap material, all that can be done by repressive measures to prevent overcrowding, and to compel the heads of working men's families to spend a larger portion of their incomes in rent. The Glasgow people will not willingly pay a higher rent for better housing, even if supplied by the corporation at cost price, but they



may be driven to it by the ticketing system. Mr. Carrick says that cottages in the Glasgow neighbourhood pay pretty well on the capital invested, and thinks (and it may be ventured to be added, thinks correctly,) that a supply of new lodging by the local authorities ought to go together with every measure which diminishes the old house accommodation of the city. At first, people, he thinks, require the sensation of want of better surroundings to be excited. The new law does not reduce the number of persons in the city; it only sorts them out, but it ought to enable the authorities, whenever they eject a crowded family, to offer them a better lodging if they like to take it. Compulsory administration of a law of the sense of the Labouring Classes' Lodgings Acts and the Liverpool Act is almost a necessity for a city which, without any original expectation or pre-arranged ground plan, has grown to the stateliness and magnitude of this modern Glasgow.

## APPENDIX.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

*Modes of  
Administration  
tried in Scot-  
land, Glasgow,  
and Liverpool.*

## LIVERPOOL.

The Act which has been so often mentioned, and is called the Liver-  
pool Sanitary Amendment Act, 1864, must be here described. LIVERPOOL.

It begins by relating how, under the Act of 1842, dangerous buildings were to be presented by an inquest or grand jury, or by four neighbours, to the corporation, who would cause repair to be made; that in 1846 the ill-health of the poor caused the necessity of appointing a medical officer, who "has from time to time, to the great benefit of the inhabitants of the borough, exercised the powers conferred on him." "And whereas there are in the borough a great number of houses situated in, "or abutting upon, or contiguous to, or at the entrance of courts and "alleys, which houses, by reason of defects in the construction thereof, or "the want of ventilation or proper conveniences, or from other causes, "are unfit for human habitation," "it is expedient that provision be "made for the remedy thereof."

The Act then orders by section 4 that if the medical officer shall find that any court, alley, or premises are unfit for human habitation, or in a condition prejudicial to health, he shall report the same, and whether the defects can be remedied by structural alterations, or whether the premises ought to be demolished. At the next sessions (in Liverpool they are held every six weeks) the report of the medical officer is laid before the grand jury, who consider it, and, if they like, may visit the premises reported upon, and then make presentment accordingly to the town council, who "shall forthwith order the borough engineer to "proceed thereon in execution of this act." The borough engineer and the owner then try to agree on the terms of the alteration, the owner having three months to decide in whether he will do the work or sell the premises to the corporation.

By section 23. if the requirements of the presentment shall involve total demolition, and not improvement of the premises, specified as belonging to one owner, the corporation must, at the choice of the owner, either buy the site or pay the value of the premises now standing on it. The corporation if it buy the site may do with it whatever seems advisable. For these purposes the corporation may borrow 100,000*l*.

The choice of premises most requiring the use of the Act is practically in the medical officer, and it will be seen that he very minutely describes what he wants. Although the functions of the borough engineer, prescribed by the Act, only commence when the reform is determined upon, the able services of that officer have probably been useful in preparing the presentment, the selections appearing to your reporter to have been

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made most judiciously. A copy of the notice is served on the owner, and being thus served at the commencement of the process it prevents any expansion of the original design. Instances may be quoted from the first presentment dated 7th December 1864, headed "the alterations, improvements, and demolitions which ought to be made are as follow, that is to say:—"

Thomas Street, in the said borough, and No. 6 Court in the said street.—That part of the premises being numbered 40 in Thomas Street which projects into the said court, and forms part of the east side thereof, and which said part of the said premises is used as a back kitchen for the said house. No 40, Thomas Street, ought to be demolished, and the said house ought to be structurally improved, so as to meet the said demolition; and the three houses numbered respectively 1, 2, and 3, in the said court, on the east side thereof, and the privy and ashpit on the same side and at the south end of the said court, ought all to be demolished. Structural alterations ought also to be made at the said court lastly above named as follows, that is to say:—In order to improve the access to and the ventilation of the said court, the floors of that portion of the two houses numbered respectively No. 38 and 40 in Thomas Street which extends over the passage to the said court ought to be raised to the extent of 2 feet 6 inches or thereabouts.

Brick Street in the said borough, Norfolk Street in the said borough, and Court No. 7 in the last-named street.—The two houses, being Nos. 19 and 21 in Norfolk-street aforesaid, adjoining to the said court, ought to be demolished. In the first branch of the said court lastly above named the houses numbered 1 and 16, and the privy and ashpit, ought to be demolished. In the second branch of the said court the four houses numbered respectively 2, 15, 5, and 14 ought to be demolished. In the third branch of the said court lastly above named, the two houses numbered respectively 3 and 4, and the wall between the second and third branches of the said court, ought to be demolished. In the fourth branch of the said court lastly above named the eight houses numbered respectively 13, 6, 7, 8, 9, 10, 11, and 12, and the privies and ashpit, ought to be demolished. The four houses in Brick Street on the northerly side thereof, adjoining to and forming the southerly side of the court lastly above named, and numbered 24, 26, 28, and 30, in Brick Street, ought to be demolished.

This is only a small extract from the whole presentment, the work being commenced in good earnest. The second presentment was signed July 4th, 1865, and from it the following instance is extracted:—

No. 9 Court Albert Street, Park.—The privies, waterclosets, ashpits, and cesspools situate between the said court and No. 10, Court Ashley Street ought to be demolished; also the ground on which stand the present waterclosets and ashpits of the said No. 10 Court Ashley Street ought to be reduced to the same level as No. 9 Court Albert Street, and on the side of the waterclosets, privies, ashpits, and cesspools thus cleared away trough waterclosets ought to be erected for the use of the persons entitled to use the said waterclosets and privies; also steps or other modes of easy access to the said trough waterclosets ought to be constructed, for the use of the persons entitled to use the waterclosets in the said No. 10 Court Ashley Street; also an iron railing, for safety, ought to be constructed, separating the said courts at the change of level.

Through the kindness of Dr. Trench and Mr. Newlands some of the proposals of the second presentment can be explained by the maps attached. The first is a plan of the existing property showing how small a portion of ground remains uncovered.

Describing the place, in his report on the act in 1865, Dr. Trench says,—

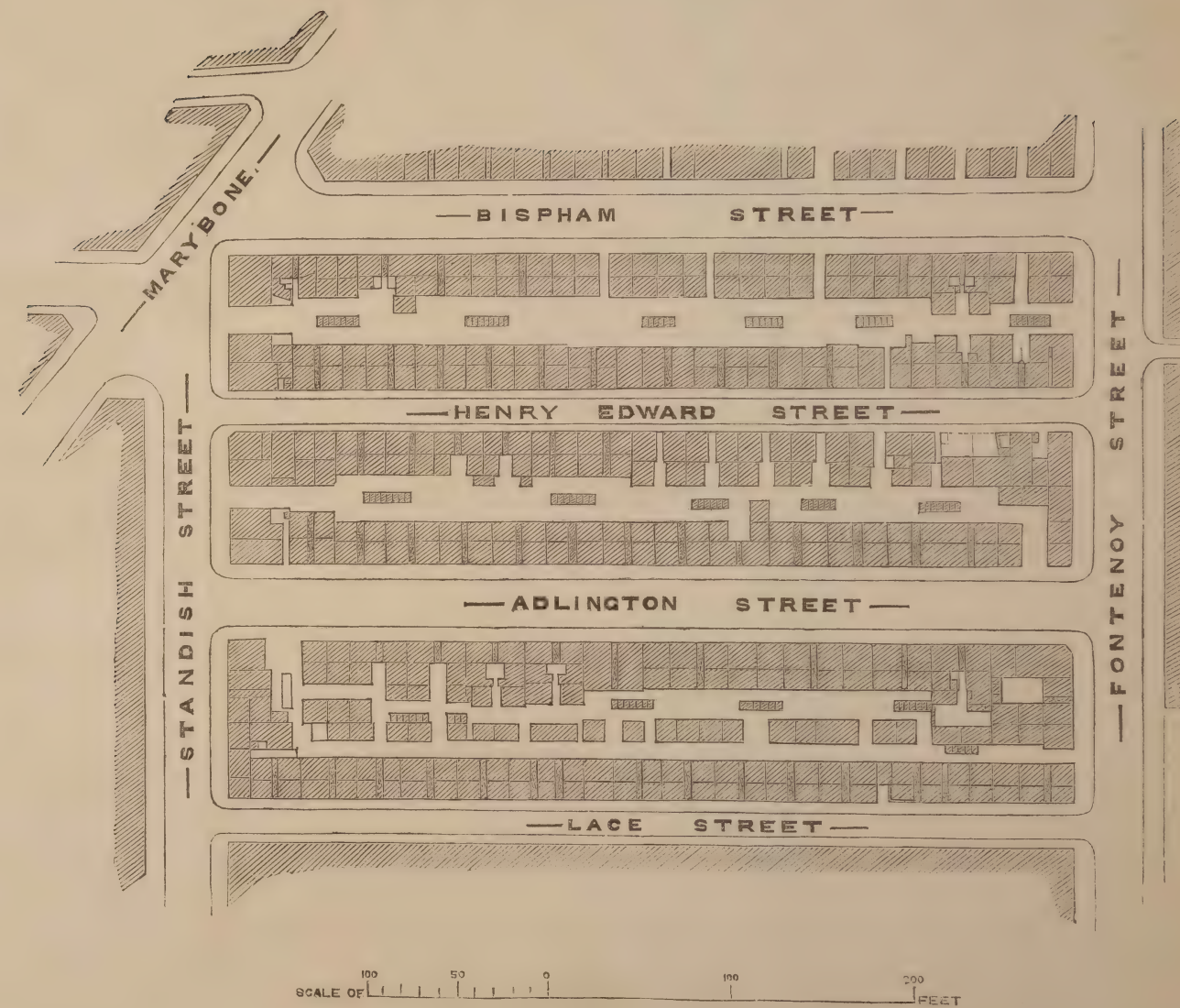
There exists in the centre of the town a collection of streets not only unfavourably situated in a low lying district, but also very crowded, very dirty, and very unhealthy. The locality may be roughly defined as extending from the north side of Dale Street to Addison Street and Sawney Pope Street, being bounded on the east by Byron Street, and on the west by Marybone and Johnson Street.



Plan of property in original condition.



Plan of property altered according to Presentment.







It is part of that mass of overcrowded streets and courts which Dr. Duncan, in his paper on the physical causes of the high rate of mortality, described as containing inhabitants packed together in the ratio of 657,963 to the geographical square mile, being nearly  $2\frac{3}{4}$  times the maximum density of London as stated by Dr. Farr. A certain degree of improvement has since taken place in this district, by the closing of cellars and alterations in buildings, but much of the old evil still remains to make it a sanitary opprobrium to the borough, and therefore, without pretending to have been able to determine which are the dirtiest, filthiest, most qualid places, the medical officer has selected for presentment courts in Adlington, Bispham, Henry-Edward, Lace, Fontenoy, and Standish streets. He suggests that by removing a line of small houses situate between the courts of Henry-Edward and Bispham streets, and one small house each in Fontenoy and Standish streets, a free open space sufficient for ventilation and cleanliness, and for the erection of proper trough waterclosets and other conveniences, may be secured; also that by the same method of demolition and reconstruction the space between the crowded courts of Adlington and Henry-Edward streets may be made available for health. The alterations recommended between Lace and Adlington streets are on the same principle, but do not require to be so extensive.

The following is quoted from the presentment of the required changes, which are, as may be supposed, very numerous :—

No. 2 Court Bispham Street.—The two houses numbered respectively two and three in the said court, and the privies and ashpits situate in the said court, also the privies and ashpits situate in No. 1 Court Henry Edward Street, ought to be demolished, and on part of the site of the said houses proper waterclosets and conveniences ought to be constructed, for the use of the persons entitled to use the present privies in the said court.

Standish Street.—The house numbered 54 in the said street, and the privies and ashpit belonging to the said house, ought to be demolished.

The second map shows the property altered according to the presentment. It will be observed that the front houses generally remain, and that the interiors of the back yards have been cleared out, but that a few of the front houses have been removed to admit light and air. The small insulated blocks are the new waterclosets, which are on the excellent and self-protecting system called trough waterclosets.

Before making any report for the purpose of obtaining a presentment by the grand jury, the medical officer of Liverpool took a general view of his means and of the work before him. He counted 3,173 courts, "of which only 542 have an entrance width of ten feet or more." After subtracting the 542, the remainder were divided into classes, distinguished by their degree of badness and cost of remedy. He seems to have proposed to destroy as few houses as possible, at first preferring the cheaper plan of removing walls and privies wherever benefit might be derived from the proceeding. A passage from his report for 1864 explains his views: "It is because the medical officer considers that more good will be obtained from the modified improvements of a great number of bad cases than from more perfect plans of alterations applied to a few, that he has ventured to suggest the desirability of at once grappling with what is clearly injurious and easily remediable."

Consultations with the borough engineer and with the committee of the council seem to be part of the system.

In the second presentment the medical officer was "guided in the choice of the present batch of premises by the results of the fever mortality during the last year." But he did not propose to destroy fever nests, but only to choose those localities for early examination and selections on the same principles as before.

And here, for the present, closes the history of the experiment. Considerations A great variety of opinions on the subject might be quoted as on New Act.

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representing various sections of the public; but as regards the administrators, the act appears to give them the powers which they conceive to be necessary, and as regards the owners of poor property they are usually anxious and even rather pressing to have the opportunity of either selling their property or improving it and the whole neighbourhood together. When the extension of the principle of the Liverpool Act to other large cities is thought of, it is impossible to avoid a degree of apprehension that officers able to carry it out are not easily found. A scientific education has a wonderful influence in weaning the mind from anything like corrupt views of professional duty; and gentlemen may be found who, like the medical officer whose duties are under consideration, will deserve and may receive the entire confidence of a great corporation, but they will in most places be beset by needy house owners and by unprincipled advisers, and persons may be acted upon to whom the medical officer will look for advice in questions of price (for without the previous consideration of such questions, money might be squandered in projects too magnificent), and he may be made an instrument in the hands of shrewd speculators. It is notorious that these reasons adverse to the Act do not exist at Liverpool, and perhaps they can nowhere be of sufficient weight to incline a municipality against the measure in places where (as at Sunderland for instance) it is as much wanted as at Liverpool; but they may be reasons for either admitting some official engineer or surveyor to a joint responsibility with the medical officer in the choice of sites for reform, or for expecting from the grand jury something more than merely ministerial action.

If this Act is the right direction for the efforts of the public to take, it seems to go straight enough to the point. Whether the full object will be gained will depend upon the economy used, in refraining to purchase property which is likely to be, for other reasons, destroyed by private persons, and on the skill used in selecting parts where a remunerative resale of pieces of land is possible. The length the money will go depends on this, for the authorities have not obtained power to levy a special rate on the proximate owners most benefited by the destructions, nor do they appear to solicit their voluntary co-operation when casting about for scenes for improvement; moreover, they now buy nothing but what they are going to pull down, so that they are deprived of any contingent benefit which might have been got had Parliament granted them the power to buy, improve, and resell whole blocks of houses. It probably never occurred to the framers of this excellent Act that even in these warrens were tenants whose retail trade should consistently be made a subject for compensation. The poor people in general seemed rather alarmed at the coming change, and among them were instances of a direct injury amounting to ruin among the washers and retailers of the district. More direct action could not be proposed, and the aim appears to be in the highest degree beneficial; but it has to be considered whether it is not incomplete, and that in a matter which is of the first and greatest importance. It may be held that the supply of other shelter should precede the destruction. Here the supply is not only placed second in point of time, but is left uncared for in the Act itself, to be reconsidered (as it anxiously has been) as the future duty of another day.

Conduct of the  
office.

Dr. Trench is put in possession of the intimate knowledge of the town necessary for his proceedings under the Act, by a house-to-house or room-to-room visitation, which is always going on under the superintendence of Mr. Higgins the inspector of nuisances, and which



is completed about four times a year. A journal is kept, and entries are made, such as "Stagnant water in the cellar," when a 24 hours' notice procures the abatement of the nuisance, or "Top room dirty," which, if found to continue on the next visit, is ground for a prosecution. The number of residents is entered at the same time, but crowding is not prosecuted wherever found, through commiseration for the poverty of the people and the scarcity of houses, when regard is had to the necessity of the poorest labourers lodging nearest to the water side. Other mischiefs are tolerated, but not without deliberation, and with the best motives; for all Liverpool gentlemen seem to have had the question under thought, and have no desire but to give permanent relief, without any great temporary aggravation of the pressure. Dilapidated privies are common; many of the ash-middens are badly constructed; and cellar bed-rooms are, it is believed, concealed in some of the courts; but all this is being reformed. Except where there is suspicion that the filthiness of premises is the wilful malicious act of the tenants, the landlords are customarily held responsible.

The regular house-to-house visitation, and the perfect dissection of the results by the medical officer, as also the recent report made to the Department by Dr. Buchanan, made superfluous any further survey than was necessary to understand the conditions described. By the courtesy of Dr. Trench and Mr. Newlands an instance has been given in full, which is characteristic of the sort of crowding together of dwellings with which those officers have to deal. Exactly the same difficulty of new provision which excites anxiety lest destruction should cause the greater condensation of the poor in the houses which remain has deterred Dr. Trench from the full exertion of his powers of closing crowded houses. The whole of this enormous city\* cannot be visited by the officers in less than several weeks, and many instances of crowding must be overlooked. Trusting to this, families sometimes live in constant migration, driven from house to house before the officers, and returning when the officers have done a district. Their poverty defies a fine, and Dr. Trench, with wise humanity, refrains from unnecessarily harassing those whom he cannot aid in seeking a better abode. Dr. Trench thinks that few live many months in the same house. It will be a curious experiment to trace the inhabitants of the condemned houses.

A comparison between the administration of common lodgings in London and in Liverpool has been the subject of a recent pamphlet, in which the matter seems to be exhausted. There are in Liverpool 1213 registered houses, a number about equal to that of London, but the Liverpool houses are smaller, and of them 450 (a much larger proportion than in London) are emigrant houses. The definition in use is, like that in London, *irrespective of term of tenancy*, and is found to work well, so far as the intention of the Act goes; but similar advantages are much wanted in the regulation of single-room tenements. The space per head prescribed is much the same as in London, but is arrived at by cubic measurement. In some old lodgings in Liverpool, where the space was originally fixed too low, the present full amount of 300 feet is not demanded. It seems time for this exemption, as well as that in favour of "passed" cellars, of which there are said to be thousands, to be brought to an end.† Dr. Trench advocates the use of single

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Modes of  
Administration  
tried in Scot-  
land, Glasgow,  
and Liverpool.

Common  
lodgings.

\* Population of Liverpool 1760, 26000—1860, 400,000.

† It is no easy matter to close a cellar. The tenants get at it by raising the planks in the room above.

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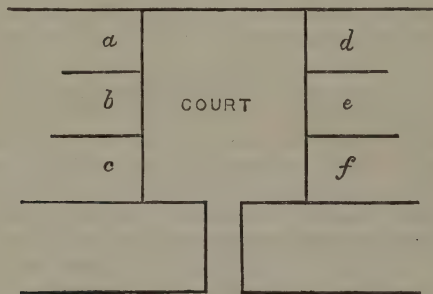
Modes of  
Administration  
tried in Scot-  
land, Glasgow,  
and Liverpool.

Visitation of  
town.

beds, an introduction which would be a very great improvement, not only through the convenience of the article itself, but by its tendency to end the difficulty of dealing with what are called married pairs, who seem to dissolve away when separate single beds are offered, and whose presence is always an incubus upon the good management of a lodging house, whether provided with partitions or not. Dr. Trench did not demand more than an average condition of these houses, and many untidinesses were seen. One house in Milton Street is perhaps the worst registered lodging in England. The keeper has been repeatedly in gaol for his neglect, but the wife then carries on the house, and does not care. If the licence should be withdrawn the establishment would continue open as before, and their poverty would defy the law. Dr. Trench prefers to continue the licence, thinking that the inspection keeps other neighbours a little under observation. He states in his report that the number of cases of overcrowding found on night inspections of registered houses has been so few that he is almost prepared to set the houses free from night visits altogether.

Without attempting an exhaustive search, occasional inquiry for overcrowding was made in likely places, and no very bad instances were owned to. Houses of three rooms, about 10 feet by 10 feet, in the worst quarter, were let at 2s. 6d. ; of two rooms 2s. Four or five people were reported to sleep in most of the bedrooms, but this might not be correct. Unregistered houses were visited at night rarely, and only on reasonable suspicion. The custom seemed to be for the occupier of the house to reside on the ground floor, and to let the cellar and upstairs rooms at 1s. 6d. to 2s. 6d. each, thus gaining a large profit. There is great profit also in the lodging houses as is known by the experiment of philanthropic model lodgings, where, although the establishments are very superior to most of the others, and the price the same, a large revenue is known to be obtained. It was observed that a higher rent was always demanded near the water side.

Plan of a court in Bannister Street.—It was a mere well, approached by an entry from the street. There were six houses ; in A lived seven persons, in B 5, C 12, D 6, E 6, F 7. The rents 2s. 6d.



Extension of  
accommoda-  
tion.

In Liverpool as in other places, two principles in the arrangement of poor people's houses have been laid down, with almost universal consent :—

(1.) That a certain maximum of persons on each yard of the earth's surface shall not be exceeded. This abstract principle ought not to prevent the erection of very high houses in watertown, which have the peculiarity of all the power of expansion being limited to the inland direction, and the demand for low paid labour being at the water side or extreme opposite side of the town.

(2.) The other principle of common acceptance is that houses built back to back are to be absolutely condemned. Such houses will be nobody's choice for any reason other than cheapness, but cheap they certainly are. The report of the Liverpool sub-committee proves that it is price alone which interferes to prevent a supply of houses, and that much of the price is in the land. If a back-to-back house can be supplied for 2s. 3d., the price of one such as the sub-committee proposes, the question is almost solved. But then comes in the principle enforced by local byelaws that such houses are necessarily unfit for inhabitation. To this may be replied that they may be incomparably better than the usual habitats of the Liverpool poor, that hundreds of new rows of them are yearly built, and that perhaps the most prosperous fourth part of our handicrafts men live in them.

The statement of the case in the remarkably able little report of the sub-committee is most important, and in its recommendation of placing residences for the poor over rows of shops in spacious streets I most humbly agree, I only fear that another storey must be added to the proposed rows, for the sake of more accommodation on the same surface, and that if the shops are to be made to pay, the doors, and as far as possible, the windows of the upper floors will have to be turned to the back away from the street, so as to save the shops below from the injury attendant on the exhibition of untidy people. And untidy these hundred thousand Liverpool Celts certainly are, in a way and degree peculiarly their own both in habitation and in person. To clean some of their floors the innovator would call for a spade rather than a scrubbing brush. Customers calling at the shop fronts would be liable to showers from the long haired heads which are craning their necks out of the windows above. Rags and nakedness will group about every poor man's door, rendering the street and its shops an abomination to all who have money to spend. More particularly food and clothing trades could in such a street appeal only to the poor themselves.

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## APPENDIX.

## PART III.

## ON CERTAIN PARTS OF THE METROPOLIS.

No. 2:

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

Modes of  
Administration  
tried in  
certain parts of  
the Metropolis.

Administration  
of Common  
Lodgings.

Average results  
of search by  
the police.

In the metropolis by far the most important means of control of overcrowding lies in the administration of common lodgings by the police.\* For this purpose, under the Assistant Commissioner Captain Harris, Chief Inspector Reason has the services of three inspectors, each of whom has control of a third part of the metropolis, and acts by the help of five sergeants and constables. The police make no night visits, except for special purposes, and then always in parties of two. It is Mr. Reason's opinion that very few indeed must be the common lodgings which escape visitation and registry, and yet the whole number of houses in which lodgers have been known to be received are only about 10,000, of which only 2,300 are now open as regular common lodgings, and a large proportion of these are only as it were on trial. The explanation of this difficulty, and there is no room for doubt of Mr. Reason's full knowledge of the matter, is that there is in London an unusually high per-centage of small families, or of single men or women who keep a separate room and provide for themselves, as they may do with special ease in London on account of the variety of conveniences, created probably by their class, for persons who wish to eat or wash without keeping up a fire or other preparation. Beggars and others of the more degraded classes have not in London to travel far from home, and numerous instances were related of these, and others whose lives were much like theirs, keeping on a room in London while on visits in the country. The tramps in fact are at home in London, and do not lead the same sort of hotel life as when on a journey.

A great many houses had been visited by the police in their search for lodging houses, which, although not registered, were, on account of lodgers having been found in them, kept on a register of a sort of second class of houses described as "under inspection." In examining these the police necessarily became acquainted with the numbers to be found in many of them, and were of the same opinion as officers in the large towns, that the numbers were generally understated. In 1841 the houses in the Strand district were returned as 4,511, and the population as 43,566, or 9·6 to a house; in 1861 the houses were returned as 4,074, and the people 42,938, or 10·5 to a house. But this number seems almost incredibly low, for when 123 houses, a few yards north of St. Clement's Church, were examined by Dr. Evans, they were found to contain 869 inhabited rooms, 653 families, and 2,050 persons, or 16 to a house; and the officers who knew the Strand seemed to agree that there could be very few houses in which were less than 10 inhabitants, while they could remember great numbers with double that population. Dr. Evans, speaking of these 123 houses, says that the number quoted was the number confessed to by the owner, and probably much below the actual number. Single-room tenements being often the majority of the poor's dwellings,† it is more important to inquire the number of rooms in a parish than the number of houses. Throughout large beats almost every room has its family; the families may be taken to average about 3·5, and the number of persons per house to vary directly with the rooms. London rooms may probably average about 1,200 feet cube, and thus the people live, with

\* An interesting account of the Metropolitan Common Lodgings may be found in Dr. Trench's pamphlet on those of Liverpool.

† In St. George-the-Martyr it may be stated, on the authority of Mr. Rendle, that of 7,700 houses 4,800 are let by rooms.

every room a bedroom, and just air enough in each to support the respiration of its inhabitants. Although, in looking over the informations brought against overcrowding, one case was found in which only 99 feet per head were obtained, and a few others nearly as low, the bulk of the cases had above 200 feet, and this agrees with what little personal experience is had of this vast subject, in showing that the number mentioned of 3·5 to a room in single-room lettings is as an average not often very much exceeded; the numbers three and four being much commoner than any other. In the metropolis from time to time instances of very great excess will be discovered, and it is to be hoped amended; but such instances of very small accommodation will not be found to be the rule in any whole parish or sub-district. As regards public health, the value of information on averages is in these matters but small. It is to the extreme cases that attention is required.

There are a few peculiarities in the management of common lodgings, in most of which the example set by the metropolis should be followed everywhere. Most especially as regards the definition accepted, which is, shortly, that *a house in which two persons, not of one family, lodge in one bedroom, is a common lodging*. The number of these excellent accommodations may be taken from the annexed copy of a regular weekly report to the police. The number seems likely to decrease, for, standing as the houses do in poor and dense neighbourhoods, they are the victims of every public improvement, and are not likely to be reopened elsewhere, as it is almost necessary to pecuniary success to obtain a large old house at a cheap rate. The new Law Courts are expected to displace the accommodation of 400 persons in common lodgings alone.

The registered houses are generally good enough, often large, and sometimes the property of an owner who has several such houses. Mr. Smith, in Flower and Dean-street, for instance, receives 500 persons, and a West end owner has 10 fourpenny houses. The most remarkable characteristics of the customers is, that they are, with very few exceptions, received as unmarried persons, there being very scanty accommodation for the married. This is doubtless in part the result of the police regulations, which insist on permanent wooden partitions being fixed around each married couple's bed. These partitions do not usually extend to the ceiling nor to the floor; they are therefore not very objectionable on the ground of interfering with ventilation or cleaning, while they certainly habituate the lodgers to privacy and decency, not one having been observed over which it was easy to look. The cost and inconvenience of these partitions induces a preference for single beds. The London lodgings are peculiar also in having small light bedsteads without posts, and easily moved; an improvement on the heavy four-posters seen nearly everywhere else, whose weight and rottenness renders removal for cleaning impossible. Such old articles, moored to the wall with cobwebs, and concealing heaps of the worst sort of dust, are common throughout the country. The newly licensed houses in London have for more than two years been under a rule in this respect, that all single men shall sleep in single beds. This rule did not appear to have raised the price of beds; they were easily got at 3*d.* or 4*d.* In only one instance were there observed to be two such beds drawn together to form one, and that instance was where the whole room was occupied by a party of German emigrants with children. On two points it would seem as if the requirements of the act might be relaxed with advantage. One was the case where several houses, perhaps a whole court, belonged to one keeper. Here each house was registered, but some of them might have no kitchen, and the inmates of

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On the  
*Housing of the  
Poor in Towns,*  
by Dr. Hunter.

Modes of  
Administration  
tried in  
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the Metropolis.

Peculiarities of  
management



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two or more houses might be allowed to use a kitchen in common. Another point was the want of power to allow a single woman to sleep in a bedroom partitioned for married pairs. Perhaps, on the other hand, a little too much freedom is allowed in the few instances in which there is no other kitchen than an underground cellar. Such are, however, usually disallowed in new houses applying for registry, and the number is therefore of course diminishing. As an example of the sort of buildings which make the cheapest and best threepenny lodgings, may be mentioned the old Marshalsea, which holds 100 persons in a comfortable yet business-like way. The owners of these large establishments, and their opinion is that of the inspectors, prefer small light wooden bedsteads, which they buy at about 4s. 6d. each, to the bedsteads of iron, saying that the former are lighter and more easily taken to pieces. It was remarked that many of the houses had the grates removed, and the hearth and chimney whitewashed, as a discouragement to filth. Common lodging-houses were visited in Westminster, Middlesex, Surrey, and Kent; and perhaps those in St. Giles's and at Deptford were the worst in all points, except that they had yards, which were not universally found in Westminster. In Deptford, in Mill Lane,\* the houses were poor and dark, the partition system here answering badly by cramping the accommodation. One house at Deptford (Wood's) was, however, in every respect a model for such houses all over the kingdom. The keeper said that 50 or 60 persons were nightly turned away at the doors when this establishment had filled; an evidence of the working man's appreciation of order and cleanliness. Reviewing the whole matter of common lodgings, I must say that, although there are many excellently managed towns in the kingdom, there is so marked a superiority in the results in London, that it would be a wise measure for some officer engaged in the London administration, or otherwise conversant with it, to bring up the lodging-houses of many of the great towns to the metropolitan level. The walls wholly free from bug-stains, the small light uniform bedsteads, the real separation of the sexes, the almost universal cleanliness, are qualities which once obtained in a town may be maintained by the ordinary administration, but a new and vigorous hand will be often required to make a beginning.

Various inspectors and keepers have said, though not with unanimous agreement,† that a small licence duty to preserve the distinction between registered lodgings and others, so as to make smuggling a more considerable offence, and to some extent to encourage the enlargement of good establishments, rather than the increase of the number of small, would be acceptable to the trade, and would aid the administration. It was evident that the police were now on good terms with the keepers, and that the lodgers were ordinarily on good terms with both;‡ but it should be stated that the inspectors thought that the thieves and their associates, who formerly used these houses, had gone elsewhere, probably into smuggled lodgings, of which London must almost certainly contain many, and out of which an astounding tale of persons may some day be told, should the police authorities allow the practice of nightly inspection, such as it prevails in Newcastle-on-Tyne.

\* Chief Inspector Reason took me to these houses and pointed out their defects.

† In Whitechapel, Mr. Argent (250 lodgers) was in favour of a duty, while Mr. Davis (165 lodgers) was against it.

‡ An owner in Brick Lane having been unjustly suspected of betraying a lodger to the criminal police, the public broke all his windows, but discovering the mistake, returned the next day and repaired them.



The annexed table is the—

WEEKLY STATE of Common Lodging Houses within the Metropolitan Police District, for the Week ending the 8th day of October 1865.

VARIATION IN THE STATE OF COMMON LODGING HOUSES WITHIN THE WEEK.				FIRST REPORTED.			RESULT OF INSPECTION OF HOUSES.						REGIS- TRATION OF HOUSES.	
				Number of Houses reported.	Number of which Keepers are served with Notice.	Number of Houses not yet served with Notice.	Number of Houses not coming within the Act, and given up prior to Registration.	Number of Houses of which the Notices to "Register" have not expired.	Number of Houses of which Notices to "Register" have expired.			Number of Houses permanently registered.	Number of Houses given up.	Number of Houses remaining on the Register.
									Discontinued to take Lodgers, but are necessarily under Observation.	Notices of "Alterations" not complied with.	Number of Houses to survey.			
Total State of previous Week .....				21,715	21,715	—	11,645	214	5,560	645	278	3,373	2,155	1,218
Operations of present Week .....														
Add .....				20	20	—	9	20	19	5	16	—	3	—
" Surveyed .....				—	—	—	—	—	—	27	—	—	—	—
" Re-opened .....				—	—	—	—	—	—	—	—	—	—	—
				21,735	21,735	—	11,654	234	5,579	677	294	3,373	2,158	1,218
Operations of the Week deducted to adjust the State.	Permanently Registered ... Deduct—			—	—	—	—	—	—	—	—	—	—	—
	Not within the Act and given up Do. 9*			—	—	—	—	—	—	28*	—	—	—	—
	Discontinued to take Lodgers Do. 19			—	—	—	—	—	—	—	—	—	—	—
	Notices to Register expired ... Do. 5†			—	—	—	—	†21	—	—	—	—	—	—
	To Survey .....			—	—	—	—	—	—	—	—	—	—	—
	Surveyed .....			—	—	—	—	—	—	—	27	—	—	—
	Given up after Registration ... Do. ...			—	—	—	—	—	—	—	—	—	—	3
	Re-opened .....			—	—	—	—	—	—	—	—	—	—	—
Actual State for Week ending 8th October 1865				21,735	21,735	—	11,654	213	5,579	649	267	3,373	2,158	1,215

(Signed) W. C. H.  
Assistant Commissioner.

(Signed) JAS. F. BUNDEY,  
Registering Inspector.  
R. REASON,  
Chief Inspector.

WEEKLY REPORT of Common Lodging Houses in which Cases of Fever or Infectious or Contagious Diseases have occurred during the Week ending the 8th day of October 1865.

Regist'd No.	Division.	Street or Place.	Parish.	Nature of Disease, and if all the Regulations were carried out by Parish Officer and Keeper, or by the Divisional Surgeon.
334	H	52, Flower and Dean Street.	Christchurch	One case of fever. Attended by the parochial medical officer, and removed to the White-chapel Union Workhouse. The usual disinfecting process (as per Regulations) applied.

(Signed) W. C. H.  
Assistant Commissioner.

(Signed) JAS. F. BUNDEY,  
Registering Inspector.  
R. REASON,  
Chief Inspector.

## APPENDIX.

No. 2.  
On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.

Modes of  
Administration  
tried in  
certain parts of  
the Metropolis.

Extraordinary  
power in the  
City.

Administration  
of 29th section  
of Nuisances  
Removal Act.

Natural diffi-  
culty.

Within the city of London, Dr. Letheby, the officer of health, exercises a peculiar power of great value. Under the sixth regulation rooms are kept under licence which form the sole apartment of married pairs with children, and the practice of receiving an unlimited number of adults of one family effectually forbidden. There are about 130 licensed common lodgings in the city, in only six of which are there the ordinary partitioned rooms for married pairs. Thus it appears that the object so much desired by the authorities all over the country, of maintaining an inspection and control of single-room lettings, is here pretty well attained without the use of the 29th section, but simply through the administration of common lodgings.

The matter may be explained in the officer's own words. Dr. Letheby says:—"Our common lodging-houses are not only the nightly common lodging-houses, but consist of all houses occupied by more than one family, and any room in which is let at the rate of 3s. 6d. a week or less. We, therefore, have two classes of common lodging-houses in the city." "I first certify that it is necessary that they should be registered, either because they are let out for nightly lodgers, or because they are indecently or unwholesomely overcrowded."

The sixth rule is here given:—

"That no more than one married couple and their children under 15 years of age occupy the same sleeping-room; and, in case a room is let out in lodgings to more than one family, it shall not be occupied by persons of different sexes unless they are children under 10 years of age."

This rule is a precedent which, with little or no variation, would, if applied in all the single-room tenemented towns, remedy half the evil. A complete cure will only be obtained by an increased supply of cheap lodgings.

Beyond the limits of the city of London there are in the metropolis no powers conferred by law to deal with overcrowding and the use of unfit dwellings, except such as are common to the whole country. Such proceedings as are taken are either by the police as administrators of common lodgings, or by the local authorities under the Nuisances Removal Act, who are the district or parish boards of works. Something can be done for both purposes by these two powers, and through the favourable decisions of the justices, more than is perhaps achieved elsewhere for some purposes, but, as in all towns of single-room holdings, there are in London supposed defects in the law which paralyse the local administrators. On the subject of these defects the metropolitan officers of health reported to the Department last year, and their report contains the result of the experience of each. And in London there is a difficulty, singular at least in its degree of strength, which interferes to prevent attempts to enforce laws which make overcrowding punishable, and consequently the boards of works have not usually put the law in motion in any but a few of the worst instances. This difficulty is the small and sometimes decreasing number of rooms or houses in proportion to the people of the poorer districts, together with the immensely extended surface, which will not permit an overcrowded district to be relieved by the expansion of a suburb.

In the following 41 out of the whole number of 135 sub-districts into which the metropolis is divided there was a decrease of inhabited houses in the decennium ended in 1861. In the twelve instances first named the population increased in the same decennium.

All Souls, Marylebone.  
Grays Inn Lane.  
Bloomsbury.  
Holywell, Shoreditch.  
Bethnal Green Town.

Spitalfields.  
 Mile End, New Town.  
 St. Mary in St. George's-  
   in-the-East.  
 Horsleydown.  
 Waterloo Road. (2)  
 Lambeth Church. (1)  
 Whitecross Street.  
 Hanover Square.  
 St. Margaret.  
 Charing Cross.  
 Long Acre.  
 Berwick Street.  
 Golden Square.  
 Rectory, Marylebone.  
 St. Giles South.  
 St. Mary-le-Strand.  
 St. Clement Danes.  
 Saffron Hill.  
 St. James, Clerkenwell.  
 Finsbury.  
 St. Botolph, Aldgate.  
 Cripple-gate.  
 West London, North.  
 West London, South.  
 City, (1).  
 City, (2).  
 City, (3).  
 City, (4).  
 City, (5).  
 St. Leonard, Shoreditch.  
 Artillery, Whitechapel.  
 Goodman's Fields.  
 Aldgate.  
 Shadwell.  
 St. Saviour, Southwark.  
 St. Olave, Southwark.

In other instances the growth of people recorded was enormous, while the growth of houses was slow, as in parts of Pancras, Lambeth, or Shoreditch. It will be recollected that the years since the last Census have been marked by more vast railway works within the metropolis than in any previous time.

There is no authority which can deal with London in these matters as a whole, and they are matters in which uniform treatment is quite necessary. The local authority which finds the whole of its district overcrowded naturally hesitates before beginning action which may relieve one house only to overfill the next, and may reasonably think that such action, unless done thoroughly, not only through the district but through the whole capital, might prove hurtful.

A regular system of visitation and regulation has long been instituted in St. Giles, and is now begun in the Strand and elsewhere. The police, who administer the Common Lodgings Act in the metropolis, and had abundant means of knowing, said St. Giles's was the only district in which they felt the action of the local authorities in the matter. They looked on it as a model of parochial administration; but the whole district, if relieved, can only be so at the cost of its more careless neighbours, who might in their turn be roused into similar action, when the various district authorities would find

they were doing little more than providing work for each other. This St. Giles's administration was in fact a very unusually energetic enforcement of the twenty-ninth section. Single-room tenements were measured and registered, and a few were ticketed with the numbers which the authorities and the landlord agreed to permit to live in each room. Prosecutions were instituted wherever any gross violations of the regulations of the rooms were detected. The justices to whom recourse was made had from the first determined on the principle that each adult person required 400 cubic feet of air.\* The informations were brought against "owners" as such, and the charge was described as the existence of a nuisance; but no objection seemed to have been taken to this irregular mode of proceeding.

But what did all this action mean? Simply that whatever might happen to the Strand or Soho, St. Giles's would not have above a certain number of persons within the district, for here new houses are impossible. The natural growth is therefore passed over the border, not (as seems to be clearly ascertained) into the outskirts, but only

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## No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

Modes of  
Administration  
tried in  
certain parts of  
the Metropolis.

Want of a  
central power.

\* The credit of this essential and responsible step belongs to the late Mr. Jardine.



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just beyond the jurisdiction of the active authorities. Dr. Evans of the Strand district in his last report says,—“Experience shows that great metropolitan improvements, whereby houses in poorer neighbourhoods are demolished, by no means disperse the resident population in the manner which might be anticipated; but they tend rather to prove that no inconsiderable proportion of the families so displaced merely migrate to the nearest courts and streets, and there provide themselves with homes, by converting the house, up to this time occupied by a single family, into one tenanted by nearly as many families as the rooms which it contains;” and adds, that farther from his workplace the man cannot go. Mr. Beale, of St. Martin’s, which adjoins St. Giles’s, says in the report of this year, “All our courts and places where rent is low are more crowded than ever.” From this point of view it is difficult to make any distinction between the results of official action on the crowds and that of great demolitions of their houses. On this subject Dr. Buchanan, the officer of health for St. Giles’s, says, in his report of 1863,—“Experience has shown that the demolition of poor neighbourhoods by new streets produces no corresponding reduction in the number of inhabitants; for the displaced population is partly provided for in houses previously occupied by single families, partly it is received into houses which already contain as many inmates as they can healthfully accommodate.” Again, in the same report he says,—“At the present moment a bill is before Parliament for making a new railway through the poorest parts of St. Giles’s. The simultaneous formation of a handsome new street, that will involve the removal of some 200 dwelling houses of a kind now occupied by the very poorest people, is likely to be insisted on by Parliament as one of the conditions for conceding this bill. At the lowest computation 2,500 persons will be displaced by this scheme. Unless provision be simultaneously made for accommodating, either in large central lodging houses, or in the suburbs with access by railway, the people who are thus removed, the spectacle will be repeated in St. Giles’s that has lately been seen in the east of London of a number of families wandering about some Saturday night, with their scanty worldly goods on their backs, without any resting place but the workhouse. Even at an advanced rent the people who are displaced will hardly be able to get an accommodation so good as the meagre one they have left, and they are generally of a class ignorant enough to be content with worse conditions of lodgment.”

From St. Giles’s eastward, over very large tracts of ground in the more valuable parts of London, such as the parts south of Holborn, the manufactories are by far out of proportion to the workmen’s dwellings, and even here people who have possession of rooms hold them when their place of work removes itself to a distance. The officer of health of the Strand thought that a half of the workmen in his district (with which he had been long and intimately acquainted) walked two miles to their work. In one parish he said the people stood 581 on the acre, although half the river was measured in; and yet when demolition of poor houses (which has been efficient to destroy about a ninth part in twenty years) occurs the inhabitants do not go beyond the same or the next parish, parting their two-room tenements into single rooms and crowding even those.

The Strand \* is commencing similar active measures to those in use in

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\* A petty session was attended where a non-resident owner was fined, and ordered to abate the crowding of a single-roomed tenement where there were 250 feet to each head, counting children with the rest. The people were weekly tenants, and

St. Giles', and when parish after parish does the same, either the whole proceeding will of necessity stop as an absurdity, or the public compassion be effectually aroused to the obligation, which may now be without exaggeration called national, of supplying cover to those who by reason of their having no capital, cannot provide it for themselves, though they can by periodical payments reward those who will provide it for them. Were it not for the difficulty of numerous independent authorities nowhere would the process of law be found more easy than in London, for there, besides having prescribed the minimum of cubic space,\* and having made a practice of treating the owner of a house let in single-room tenements as the person "permitting" the overcrowding, the justices hold that the house containing different families in different rooms is, if these families are too large for the accommodation, overcrowded with persons "not being of one family." In the City adult children even are not allowed to live with their parents in single-room tenements. This is controlled by means of the regulations for common lodgings; but in other districts nothing short of proof within the above-mentioned reading of section 29. will enable the authorities to deal with the matter. From the rules of the justices bench it is apparent that any parish of London which chose to set seriously about the business might rid itself of overcrowding by rough and ready methods; but it may well be doubted whether such practice could become general without causing harassment and general shifting of a miserable people, with no good result except the necessity it would ultimately cause for legislative interference, which might deal with the matter in a more comprehensive spirit.

The squalid unhealthy residences of the labouring and other poor persons in London have been so often described that the public may be said to be now possessed of a true notion of their extreme badness.† Except to point out the peculiarities which distinguish the badness of London from that of other great cities, the reporter has little to add on the subject. He feels clear on two points; first, that there are about 20 large colonies in London, of about 10,000 persons each, whose miserable condition exceeds almost anything he has seen elsewhere in England, and is almost entirely the result of their bad house accommodation; and, second, that the crowded and dilapidated condition of the houses of these colonies is much worse than was the case 20 years ago, sanitary legislation having as yet done little more for old property than to substitute for cesspooled privies a larger number of drained closets which very generally are of imperfect construction.

There are districts of London which have little of the metropolitan character. In Rotherhithe, for instance, the houses of the working men, and the habits induced by them, are peculiar, and very much to be preferred to what is seen nearer the heart of the town. There were never many cellar bedrooms in Rotherhithe, the land was too wet, and although the parish abounded in open ditches and other outside abominations, the houses have always been small, and calculated to

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—  
Modes of  
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the Metropolis.

—  
Freedom from  
legal ob-  
jections.

Comparative  
observations  
in parts of  
London.

Rotherhithe.

the owner protested he could not get them out. This may not be true; but it must be said, in justice to such owners, that, whatever care they may take in refusing to let single rooms except to small families, the tenants will receive lodgers without giving the landlord any means of knowing the fact, and it may be hard in such a case to hold the owner to be guilty of "permitting" the offence. Instances were known in St. Martin's where the owner had consented to bind himself to receive no more than a certain number into each house. The authorities here acknowledged the difficulty of ejecting tenants.

\* Sometimes 300, sometimes 400 feet.

† Recent and minute accounts of various parts of London may be found in series in the Medical Times. The subject is nearly exhausted.



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London houses.

receive single families. There are many small houses of four rooms, let at 5s. a week to families, who, though they occasionally take in a single man lodger, are, in the opinion of the officer of health, seldom crowded. The people here are well paid, and rent not being exorbitant, the local authorities have managed to establish a rule, that two adults to a room shall be considered the maximum to be accommodated. The inspector of nuisances makes it his business to discover over-crowding, and has influence enough to abate it without a prosecution. But Rotherhithe is one of a very small number of exceptions to what must be described as the usual state of a London workman's residence.

Setting such suburbs then aside, to point out the difference of form between dilapidation or other unfitness of habitations in the metropolis and in the great towns, especially in the manufacturing towns, the circumstances under which they have respectively been built, and the class of persons for whom the houses were originally intended, must be kept in remembrance. The manufacturing population were probably in most towns never so well off or so well housed as now; their houses in most of the towns seldom contain above four rooms, and seldom contain more than two families, or a family with a lodger or two. Their houses were not well built originally, and the walls were always too slight to carry a fourth or often even a third storey. Here then, although you have small houses crowded on small surface, of all sorts of originally bad construction, and in all stages of dilapidation, you have not the evils which appear so peculiarly offensive in London, and a few of the old walled cities, such as Exeter, Edinburgh, or Newcastle. For the number of houses originally built for the sole occupation of one working man's family is comparatively small in London.\*

Houses for working men's occupation, sublet in separate rooms each to a family, are on the other hand immensely numerous, and indeed form a great proportion of the inhabited buildings on the south and east of the centre of London, and, with the exception of a few modern fashionable quarters, on the more distant parts of the north and west. Houses of this sort are still (or were lately) built even in the parts of Westminster, where land is at a high price, as for instance in Bedfordbury, where some of the smallest rooms and lowest rents in London may be found. This class of houses has not been observed to exist in great number in English towns. They are poor, dark, and unsubstantial places, sometimes put up in large colonies together, or at others occupying the yards or gardens of specimens of a better older sort built for competent tenants. And these older and better houses also form the present residences of a large proportion of the very poorest people. The tract of land commencing with Farringdon Street, and extending westward through the neighbourhood of the Inns of Court, of Covent Garden, and Soho, is full of them, and although their strong wood work and thick walls must bring warmth and a certain comfort, their great height, combined with the superior value, and therefore the scarcity of area, makes them more unpleasant, at least on the ground floors, than many of the cheaper residences of the east end and outskirts. As characteristic of London, and as among evils which most loudly demand remedy, it will then be proper here to mention the want of

\* There are such, and sometimes of the smallest sort. For instance, a row was visited of unilocal huts of wood in a crowded part, and named Bull's-head-court, Kent Street, Newington. Here was an alley 3 feet 8 wide at the narrowest. The hut measured was about 10 feet 4 by 10 feet 4 by 6 feet 4. There was no back opening, but a door and window in front. The rent seemed to be 2s., and at least in one hut were seen two beds. This was a sample of poor cottage accommodation in the midst of the metropolis.



space in proportion to the height of houses. In the Strand district ground floors were seen whose windows looked into a sort of dark and close well; so dark that persons who lived in the rooms (and they were single-room tenants) could at no hours read without candle or fire, and so close that even the opening or breaking of a window could not be recommended, for into the damp mouldy atmosphere rose the exhalations of the uncovered dustbin, which had for its wall the wall of the room, and which was full up to the window sill. Not that this dust was the refuse of the miserable inhabitants, but of numerous houses around, which, having no yards at all, had the perhaps still worse arrangement of a dustbin within the house, as was seen in Charles-street, Drury-lane, or none at all, when the inhabitants must necessarily have recourse to their neighbours'.

Dark tumbledown dirty staircases may be found everywhere; but had repair and dearth are nearly allied, and results of a common cause, especially active in London. The great demand for room, the high value of land for business purposes, and the results of demolitions for public improvements are common to London and all great towns; but there is a peculiar influence at work in London adverse to the comfort of the poorer tenants. This is the influence of an immense number of middle-men, by whom the properties are burthened. The price of land in London is always high in proportion to the annual receipts from it, because people speculate upon some day either selling at a jury price or obtaining a vast increase of value through the proximity of some great work. There is a regular trade of dealing in fag-ends of leases, and the art of eluding covenants is well studied. Gentlemen in this business may be fairly expected to do as they do—get all they can from the tenants while they have them, and leave as little as they can for their successors. This is not a landlordship likely to conduce even to remunerative investment for the benefit of tenants, and certainly not to just thought of the right of the nation to be protected from the results of miserable housing of the poor.\*

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the Metropolis.

Owners.

\* The difficulties experienced by local authorities in dealing with a poor landlord are thus related by Dr. Buchanan in 1861:—"In January 1859 the sanitary inspector reported that there was an open privy with a cesspool at No. 30-31, Southampton Mews, and that there were very foul smells in the premises. Notice was given to the owner on 2d February, and a second notice in March. In April the owner was summoned. In May a magistrate's order was made to effect the necessary improvements, and meanwhile to close the premises as unfit for human habitation. In August the owner was summoned to show cause why the order was disobeyed. In December (some delay having occurred through an informality of the order) a penalty was inflicted for allowing the house to be still occupied without alteration. This was not paid, and in January 1860 the owner was imprisoned for a month in default. In April he was again imprisoned after a repetition of these proceedings. Still nothing was done, and the rooms continued to be occupied. As the measures against the owner failed to procure any improvement, the man having no objection to the alternative of prison, application was made by the board for assistance to the steward of the Duke of Bedford, but even up to the date of the present report the same conditions remain. Meanwhile, in the summer of 1859, the houses of Bloomsbury-place and Bloomsbury-square, on which these premises in the mews abut, were pervaded by bad smells and by zymotic diseases, referred by the medical attendants of the cases to the miasms of the mews. In the summer of 1860 again the same smells, and again the same outbreak in the neighbouring houses, this time taking the form of diphtheritis. In November a child, from the house itself, died of diphtheritis in University College Hospital. And now, in the summer of 1861, among other complaints, a medical practitioner writes from Bloomsbury-square—"As usual, now that the abominations of Southampton-mews are upon us, and the smell has been most unpleasant, diphtheria has broken out."

Mr. Rendle's "London Vestries," 1865, contains some interesting matter on the delays of bad landlords and apathetic officers.

## APPENDIX.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

Modes of  
Administration  
tried in  
certain parts of  
the Metropolis.

Filthy cellars.

The history of another peculiar evil is to be found in the attempts of municipal authorities to abate one still worse, which existed until a few years ago. It is now necessary that every dwelling house shall have a drained closet, and such have been supplied in the little yards, furnished with water for flushing, and more or less completely trapped,\* according to the owner's means. To keep them in order is the great service which the inspector of nuisances can render. But, as a great many houses have no yards,† the owners have been compelled, in order to carry out the law, to place closets somewhere within the house, and in poor property they have naturally chosen the cellar as the cheapest place. There are hardly any public closets in London, and this closet in the cellar has to serve the men as well as the families of six or eight rooms above. Of late years fires have been seldom lighted in cellars,‡ and in any alteration of dust-bins or out-buildings the cellar windows have often been blocked up. Consequently the cellars are now dark and wet, and in every way repulsive to enter. Those visited were, in addition, sometimes too low to stand up in, and the privy was sometimes in the corner the darkest and most distant from the entrance. The consequence was as a matter of course, persons would not go beyond the door-step, either for their own purpose or to empty pots from up-stairs. There was not a responsible keepership of the privy in all cases, though in some a tenant of a ground-floor room was commissioned to look after it. The remedy in use for the evil is to throw a little clean straw down, so as to make a footpath to the closet.

Many houses then, having no yards, yet standing in alleys only a few feet wide, and being three or even four storeys high, dirt, darkness, and mouldiness are necessarily the prevailing character of the ground-floors, and, exposed as each tenant is to the results of the filthy habits of the rest, there is no encouragement for a desire of separate cleanliness. Although there are not very many cesspools or untrapped closets in London, the cellars are often little better than cesspools, and the trapped closets are often out of repair. The dirty habits were everywhere blamed, and the few instances in which they might be avoided were repeatedly mentioned. The people were said to keep corpses, even in one instance for a fortnight; they kept dogs and other animals upstairs; they were known actually to pass a chamber-pot out through a window to rinse it in the water-butt. But then the butt had no

\* It would be well if the sink drains were trapped also; they are often very offensive.

† Dr. Evans, officer of health of the Strand district, writes in 1865:—"In not a few of these dwellings there is no kind of open space at the rear, or at most but a small backyard; these underground rooms or cellars have become fixed upon as the site of the watercloset, common to all the families occupying the house, and in some instances also as the position in which the dust-bin and water receptacle are placed. The result of these arrangements is not difficult to conceive, though their effects in some cases are almost too disgusting to describe. The dust-bin, instead of being restricted to its intended and legitimate purpose, becomes the general receiver of vegetable and other refuse; the watercloset speedily assumes so filthy a condition that the object for which it was designed is rendered impossible of accomplishment, and it becomes converted into a kind of receptacle for human excreta; while the noxious gases emanating from one or both these sources are but too frequently absorbed by the water in the butt or cistern close at hand, from which the daily supply of the inmates is often derived. In extreme cases, indeed, the condition of things is even worse than this; for instances have come under my cognizance in which some of the inmates would do no more than advance to the top of the cellar or kitchen staircase, and, utterly regardless of consequences, throw everything down into the regions below."

‡ Although there are hundreds of cellar bedrooms in London, the number is comparatively insignificant. Nearly every one, however, is unlawful.



business there, and too often its contents would hardly suffer from such a proceeding. Such cisterns as were seen were usually filthy within, and the water-butt not unfrequently stood beside the closet in a cellar which was but a pool of urine and washings. The closets, even when in the house, are not always below ground, the local authorities having occasionally, where there was no cellar, compelled the conversion of a kitchen into one or more waterclosets. It would appear well to treat dark and low cellars with insufficient steps as inaccessible cellars, or practically as no cellars at all, and to call on the owners of such to make accommodation elsewhere in the house, not only as a convenience to tenants, but to end the injurious system of filling the cellar with ordure, which follows only too certainly the defects of present arrangements.

In visiting Whitechapel, in Goldston-court, for instance, it became clear that the cisterns did not represent the water supply of the people. Although there were large cisterns in some courts, the owner only supplied water from the stand-pipe, and this supply was on daily (except on Sundays) from 25 to 45 minutes. That the houses were full of people might be judged from the number of beds, and that they had not utensils enough for a daily store of water was seen. The consequence was seen also, the alleys, the privies, and the insides of some of the houses were dangerously filthy. The rents here were low, only 1s. 9d. being charged for a few little houses of two rooms; but the scarcity of water was found to be general where much higher rents prevailed.

The rents seemed highest on the ground floors where a little business might be carried on, but a back room on the ground floor was often the worst and cheapest of all. Where a front room would fetch 4s. or 5s., and would be sometimes divided by a partition with a borrowed light, the back room would be a miserable little den let at 1s. 6d. or 2s., at which latter rate two women paid for a room at the West End which measured only ten feet by five. All sorts of sums might be quoted as room rents, from 1s. 6d. to 7s. 6d.,\* but the greater number were between 2s. 6d. and 3s. 6d. (rooms of course of the poor only), and among tenants of such rooms it is believed, though doubtless others may have a contrary experience, there are but few long arrears of rent. The worst of these rooms are occasionally found without any external window, and with no means of ventilation except the door and fire-place, but nowhere was seen a room destitute of a fire-place, which formed the whole accommodation.

The evils of bad house accommodation are palliated, and occasionally cured, by the action of the local authorities. In some parishes a daily house-to-house visitation is made, now and again, at the instance of the officer of health, and where it appears necessary and is likely to be successful a prosecution is instituted. The proceedings are almost invariably taken under the Nuisances Removal Act in preference to the Metropolitan Management Act, and are ordinarily successful against removable nuisance, in some parishes the 13th section having been pushed to its full extent; still, however, the evils which do not depend on the presence of a removable nuisance remain beyond control. In some instances these evils will, however, be otherwise abated, for narrow courts and miserable houses mark the cheap districts chosen for destruction by coming great public works. In St. Giles's, Shoreditch, and elsewhere the local authorities have in-

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Modes of Administration tried in certain parts of the Metropolis.

Scarce water.

Rents.

\* "Rents have become so heavy that few labouring men can afford more than one room."—Report of officer of health of St. Martin's-in-the-Fields, 1865.



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duced owners to demolish a few buildings, have caused the raising of the roof, to enlarge some very low houses, and have endeavoured by improved ventilation to make the small space receive without injury to a large number of inmates; but the consent of the owner has to be obtained before any of this can be done. The parishes have not executed the Labouring Classes' Lodgings Act, but the public spirit of a few capitalists has raised some very good blocks of houses to be let in single-room or two-room tenements. These, however, are beyond the scope of the present inquiry, because the cheapest apartments (and they were only a few) could not, without gratuity, be let at less than 3s. 6d. a week and upwards. They are doubtless of unmitigated advantage to the working men, and the children brought up in them will be a class above and removed from their relations in the courts. There are, however, only apartments for perhaps about 10,000 persons in the whole number of these blocks; a number about equal to that of persons whose houses have been demolished in one single parish, such as Shoreditch. Probably it is in this way, by the building of large and high blocks of labourers' dwellings in the wider streets and spaces, by persons who own the freehold or who have long leases, that relief will in after years be obtained by poor people; and it is hardly possible that so long as the national prosperity continues there should be danger of loss in a parish entering into such a speculation, when it is considered that the parish is a landlord who not only asks as high a rent as another, but has lodging and board too to provide gratuitously for those who cannot get apartments at their own cost.\*

There are parts of London, such as the streets of Bethnal Green to which Dr. Sarvis called attention, where small houses might give way to large, and thus increased accommodation be obtained. This district has sustained much injury from the railway, and some of its inhabitants advocate the principle that the new Metropolitan Railway Acts should contain clauses compelling the erection of large houses by the railway company wherever the ground along which they run is covered with small, and the streets and spaces adjoining are open enough to carry a higher sort. The demolitions in Bethnal Green were no doubt in part a cause of the erection of many new houses, but these are too far distant from the workshops to afford much relief to the old centre of population.

Relief by  
Railways.

The amount of relief which may be afforded in London by railways is not probably so important as it at first appears. The labourers have not in London one ruling inducement as at Liverpool to seek a waterside, for there are opposite watersides, both of very great length, and immense manufactures all over the town. Factories, of which all sorts and sizes are numerous, will probably move out into the suburbs, and the labourers will go with them; but the loss of time, the cost, and the uncertainty of arriving in time at the factory, will most likely deter working men for ever from joining heartily in the railway scheme.† In the smaller town of Liverpool this matter has been ably reported upon by a committee of the corporation, and their conclusions, which, however, are only put forward modestly as bases for discussion, are here given as being applicable to the London question:—

\* In Mr. James Hole's book called *Homes of the Working Classes*, published since this report was compiled, the question of relieving the evils and the means of supplying good houses are well considered, and very little more remains to be said on the subject.

† In St. Martin's where the class of artisans is a high one, railways are rather in favour among the richer working men, as means of escape to better accommodation.

1st. That, within reasonable limits from the seats of labour, it is impossible to build workmen's dwellings merely as such and suited to the class contemplated, at rents which they can afford.

2d. That, within the same limits, it is possible in good thoroughfares to build workmen's dwellings, combined with shops; the shops paying the difference of cost; that is, the deficiency caused by the low rents of the houses.

3d. That it is probable, nay almost certain, that landowners outside the borough will set their faces against the railway scheme, on the ground of pauperising their parishes. The workmen working in Liverpool, and living in parishes outside, would, with their families, in the case of poverty or distress, be chargeable on the parish where they are domiciled.

4th. If the railway scheme is not opposed on the grounds above noted, and the minimum charge for carriage be 6d. per week, cottages may be built without land for a garden, to be let at 3s. per week, which, with the railway carriage, will make the rent 3s. 6d. per week, quite as much as a workman of the class intended to be benefited can pay; but if with land sufficient for a small garden, at 3s. 8d. per week, including carriage.\*

Until relief is found by means of large houses or by the railway system, and there is no other which affords much prospect of the desired result, local authorities will find, as they now find, that equally with the laws against overcrowding those against unfit houses must be administered very gently, so as not to deprive those who have imperfect shelter of the little they do possess.†

When the usual motives which determine the choice of a residence by working men are considered, the chief seem to be the low price of lodging, and the nearness to the workshop or other place of demand for labour. Other motives comparatively need little thought. It is true that a man often pays less for his lodging than he can afford; still, as his income is precarious, he is prudent in not incurring high permanent expenses which cannot be quickly retrenched. It is true also that a few miles of walk do more good than harm to a tailor, or even a compositor; but on the other hand such a distance altogether forbids the man's going home to dinner, and this is a primary consideration. It seems that these two objects, cheapness and proximity, can only be attained in this present state of London through the migration of *both factories and workmen* out into the cheaper suburbs, and to this end railways (in whose value as a means of bringing men to their work I have little faith) and wide streets for heavy traffic will conduce. But the migration of factories and workmen means nothing less than the establishment of colonies of vast population down both sides of the river, a movement for which experience has shown that our present municipal and parochial law is not prepared.

There is a large population of crossing-sweepers, hawkers, beggars, jobbing servants, and tramps, who, together with the dishonest and immoral classes, form a considerable proportion of the people of the Strand, St. Giles's, St. Martin's, Westminster, and other districts,

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Removal of  
Factories  
the true relief.

Palliative  
measures.

\* A high authority, however, has more hope of benefit from the use of railways by the poor. Dr. Buchanan, in his last annual report on St. Giles's, says.—“It is understood that facilities will be given by the Railway Company for the cheap transit of labourers along their line, and an inducement will thus be held out to the poor to seek, and to capitalists to provide, in the suburbs better house accommodation than could possibly be procured at the same rate in St. Giles's. It remains to help the working classes to understand the advantage that they may thus gain for themselves and their families in economy of health and in accession of bodily and mental strength.”

† Tenants are sometimes summarily ejected when suspected of setting a bad example by complaints against their accommodation, and this acts to deter sanitary reformers in London from interfering where they have no power of redress.



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and who to obtain a subsistence are obliged to live within reach of the rich. Nothing will induce these people to go away into the suburbs so long as there is the barest shelter for them; and as they are in the streets all day, and not always to be counted at home at night, their enormous number has never been accurately estimated. For these nothing more seems to be wanted than large common lodgings at the cheapest rate, free from restraint and patronage. Marriage does not appear to be much known among them. While in the great towns, and also perhaps in London, married people form the bulk of the adult labouring class, among the resorters to common lodgings in London are few but who present themselves as single men, and of the couples a large proportion only want brothel accommodation. All such might without hardship be expected to use the common lodgings, and the remainder of the poor population, the married pairs, and the real labourers, might, if eased of these irregular and disreputable people, preserve more decent habits, and, by the aid of some structural improvements in ventilation, in water supply, and in closet and refuse accommodation, attain to a much better condition than at present.

I am afraid that very little relief is to be expected from the rearrangement of large families in large rooms and of small in small. The 29th section if vigorously worked would effect this in many properties; but variety in the means of paying rent, the dislike to let a good room to a large mischievous family, and above all the very little there is to choose between one room and another in most properties, will check even this little reform. For the little palliative measures that can be used, it would not appear as if any great change of the law is required. Plenty of old property would be converted into common lodgings as soon as it pleased the legislature to extend the necessary part of the requirements of the Common Lodgings Acts to all single-room tenements, and exemption no longer existed in favour of a certain class of lodgings-owners, and consequently against another. That the present Common Lodgings Act was originally intended to have a wider application than justices throughout the country have understood it to allow may be inferred from the opinion given by the Attorney and Solicitor General in 1851 and 1852, in which "considering that apartments thus let and occupied are especially within the mischief intended to be remedied by the act," they recommend that it be attempted to be put in force in cases of tenants of single rooms who admit lodgers. And though they add that they entertained considerable doubts as to the result, it seems plain in which direction their wishes as members of the government and legislators went. From the very first the act worked well, and little wonder can be felt that an amendment which would give undoubted sanction to the recommendation of the law officers was never proposed.

Such interference is, however, urgently required, not only where families in single rooms receive lodgers, but even where no strangers are received; for, independent of the high and uncertain numbers who claim to be of one family resident in insufficient space, instances are found of contagious disease which renders a room previously tolerable a true pest house. There is no power to interfere. When the tenants die, the room is immediately relet, and the bed which has sustained the patients sold to a neighbour. The removal of neither the sick nor the dead can be insisted on. For all these evils the application of a part of the Common Lodgings Act seems to be the prompt and easy remedy, and the number of instances of circumstances such as are mentioned is so great as to call for interference of the sort.



## PART IV.

## APPENDIX.

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## BATH.

## BATH.

At Bath the surveyor and an inspector of the police force are inspectors under the Nuisances Removal and Common Lodgings Acts. There are not many small or even middling sized working men's houses in the city, the streets were from the first well set out and the houses well built, and now no incurable defects of structure are to be found. The city is in a rather peculiar position in several respects. There are no important building byelaws; indeed, there has been very little building for twenty years. No action has been taken to obtain the closing of unfit houses. It is supposed that no cesspool privies remain in any of the poorer parts, the closets being placed on drains with the ordinary stop troughs or syphons. As in London, and, I think, nowhere else, a common custom prevails of keeping a drained closet in the basement cellars either of the houses or under the roadway. Such an arrangement cannot, as in the case of a cesspool, be absolutely condemned as a legal unfitness, but is often very unwholesome and offensive. There are no beds in cellars; but, as in London, men-servants and their families in Mews sleep over the carriage houses or stables. House accommodation is extraordinarily cheap for working men. For instance, in Gibbs Court, Walcot Street, the houses, which are back-to-backs, are let in single rooms, to two, three, or four families in each house, at 6*d.*, 8*d.*, 9*d.*, or 1*s.* a week. Overcrowding is not common in Bath. At No. 17, Avon Street, a house occupied by Ann Burrell was observed. It consisted of two distinct buildings; in one the ground floor was a wet and filthy cellar, with a stinking privy on a stopped drain in it. Above were two bedrooms, measuring 12 feet by 10 by 6 each; in one were four beds, in the other three. In the other building seven beds were found in two small rooms. The inhabitants of this place were professedly beggars, and the whole was dangerously dirty; but, neither under the Common Lodgings Act, nor the 29th section of the Nuisances Removal Act, could any improvement be effected, because, as the inspector reported, the local legal opinion was that a prosecution could not be sustained on such evidence as was procurable.\*

The registered lodging houses were only seven, but they were rather large, receiving in all about 170 persons, and were assisted by a benevolent Refuge with 20 beds. The houses were good, and the bedding remarkably so. Three hundred feet of space was required for each person. The price 3*d.* The inspector does not enter houses on suspicion, but trusts to accidental information to get all the houses registered. The last entry of a new registered house was in March 1864. There had been no prosecutions since November 1859, when a lodging-house keeper was fined 40*s.* for dirtiness.

\* Both the law clerk and the inspector of the board disclaimed the responsibility for the continuance of this evil. The surveyor immediately set about remedying the part which belonged to his province.

APPENDIX. The care of Inspector Bond has enabled me to add the following result of a night inspection of six houses in Bath.

No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.		House.	Men.	Women.	Boys.	Girls.
BATH.	No. 23, Gibbs Court, 3 rooms:					
	Ground floor room	- -	1	—	—	—
	1st " "	- -	1	1	2	1
	2d " "	- -	—	1	2	2
	No. 8, Gibbs Court, 3 rooms:					
	Ground floor room	- -	1	1	2	—
	1st " "	- -	1	1	1	1
	2d " "	- -	1	1	—	3
	No. 17, Avon Street, 6 rooms:					
	Cottage at back: Lower room	-	3	—	—	—
	Upper " "	-	3	—	—	—
	Front House, 1st floor:					
	Front room	-	3	—	—	—
	Back " "	-	3	—	—	—
	" 2d floor:					
	Front room	-	—	2	—	—
	Back " "	-	1	—	—	—
	No. 7, Galloway Buildings:					
	Ground floor. Front room:					
	No. 1. -	-	1	1	—	—
	" 2. -	-	—	1	—	—
	" Back rooms:					
	No. 1.* -	-	—	—	—	—
	" 2. -	-	—	3	1	—
	1st floor. Front room, No. 1. -	-	—	2	—	—
	" " 2. -	-	}†	—	—	—
	" " 3. -	-		—	—	—
	" Back room, No. 1. -	-		—	—	—
	" 2. -	-	1	1	—	—
	Attic floor, 3 rooms:†		—	—	—	—
	Back room, No. 1. -	-	—	1	1	1
	Garretts. Front room, " 1. -	-	1	1	—	2
	" " 2. -	-	—	—	1	2
	" Back room, " 1. -	-	—	1	—	—
	" " 2. -	-	—	1	—	—
	No. 8, Galloway Buildings:					
	Basement floor, 2 rooms -	-	1	1	3	3
	Ground floor. Front room	-	1	1	1	1
	Back " †	-	—	—	—	—
	1st floor. Front room	-	—	1	1	1
	Back " "	-	1	1	1	2
	2d floor. Front " "	-	1	1	2	—
	Back " "	-	1	1	3	1
	Garretts. Back " "	-	—	1	—	—
	Front " "	-	—	1	—	1
	" " "	-	1	1	—	—
	No. 2, Galloway Buildings:					
	Basement. Front room	-	1	2	1	—
	Back " "	-	—	1	2	—
	Ground floor. Front room	-	1	—	—	—
	Back " "	-	4	—	—	—
	1st floor. Front room	-	1	1	—	1
	Back " †	-	—	—	—	—
	2d floor. Front " "	-	—	1	—	2
	Back " "	-	—	1	—	—
	Garrets. Front " "	-	—	—	1	1
	Back " No. 1. -	-	1	1	—	—
	" " 2. -	-	—	1	—	—

\* Used as sitting room only.

† Empty.

## BERWICK.

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## BERWICK.

Berwick is governed in sanitary matters by the corporation acting as a local board of health. The chief of police is appointed inspector of nuisances and also of common lodgings. He has two officers who are specially told off for the discovery of nuisances. There was a recent proclamation on the walls, urging the keeping clean of the interior of houses, and the board had frequently lime-washed the interior of poor people's houses at the public expense. In one instance the cost had been recovered from the landlord. In many cases whole families inhabited single rooms, but I could get no clue to any reception of lodgers in such circumstances. The poorest lodged people were journeymen tailors or shoemakers of the half vagrant class. Hardly any foreigners were known; none seemed to land here.

There was nothing unusual in the byelaws, except that in the common lodgings rules the age of childhood below which two children might count as one adult was fixed so low as six years, and that the cubical space allotted as a minimum to each adult was the smallest known in England, 200 feet. I am inclined to think this fixed amount is insufficient when not aided by the usual powers as to windows, and the reduction of beds in times of disease; but the lower the minimum the more searching must be the inspection into circumstantial conditions. Poor people's rooms in Berwick may be taken at about 11 feet by 11, the rent being usually 1s.

Small space  
exacted.

There were eight common lodging houses. Wales was licensed for 24 persons. There was no privy; on this subject the byelaws order the keeper to provide "such accommodation in the way of" privies as shall be satisfactory to the board. Kilty's had clean beds, but the management was nasty and untidy, and there was reasonable suspicion that the sexes were mixed. Dawson's was a very good house, licensed for 31, but now only in use by four persons. Conolly's had only one room with two "concealed" beds.

## BIRKENHEAD.

At Birkenhead the local authority is with the improvement commissioners, who have appointed a medical officer, subordinate to whom is an inspector of nuisances. Neither of these officers has any private engagement, and the former receives 250*l.* a year. The inspector reports to the medical officer. Many houses here are let in single rooms, and there is, as usually follows, too much crowding. No action has, however, been taken by the public to supply labourers' dwellings, and the officers thought houses were not scarce. A house-to-house visitation is going on slowly, and as the inspector observes matters requiring a change he enters the complaint in a book, giving notice to the responsible persons to abate the evil. After a week he visits a second time, and in about half the instances he could then report the nuisance abated. In instances of overcrowding the entries often ended "complied with notice," or "left the house." The measurements of a few bad instances of crowding are here quoted:—

## BIRKENHEAD.

6 persons to 590 cubic feet.

4	"	422	"
4	"	333	"
5½	"	495	"
8	"	1,090	"
9	"	990	"



## APPENDIX.

No. 2.

On the

*Housing of the  
Poor in Towns,  
by Dr. Hunter.*BIRKENHEAD.  
Failure of the  
29th section.

On the 25th May 1864 the magistrates dismissed two cases in which the numbers were 6 persons to 916 cubic feet and 6 to 1,062. In these cases, when the space challenged was that of a single room, in which the whole number lived, the bench asked for the gross area of the house, including, perhaps, unoccupied rooms above or below, and the officers understood that the case was lost because the space complained of was a room, not a house. For these private rooms where people live day and night the medical officer had only demanded the space of 250 feet, the same as at the common lodgings. There were 12 notices against overcrowding in the week when the town was visited, though not often so many. Here is an instance from the book, "D.K., 27, Ivy Street, 8 rooms, 6 persons in one room of 1,069 cubic feet. Notice, "January 13, 1865, expired January 20. Not complied. Case heard "9th February, fined 10s. Order to reduce." The same man had been fined 5s. before.

Numerous orders to clean and whitewash are recorded; they seem to be attended to. On the 5th August 1865 a fine of 1s. and costs was inflicted on four recalcitrants. These prosecutions were made under the 57th byelaw, which is enforced by a penalty of 5*l.*, and 2*l.* a day. Among the ordinary complaints collected by the house-to-house visitation are numerous entries of "house dirty," "cellars flooded," and also frequent censuses of houses overfull. "Common privies under the bedrooms at 3, Davies Street." A thoughtless neighbour empties dung pots from an up-stair window into her neighbour's cistern. "August 5, 1865, 109 houses, containing 507 apartments, have been inspected during the week." In these cleaning cases the ratepayer of the house is prosecuted, and he is taken to be the occupier, to the excusing of the tenants of the separate rooms to be cleaned. A fine is sometimes inflicted (9*s.* 6*d.*), and has always been paid. In cases of poverty the Commission will supply lime and brushes.

The medical officer hoped that the power to make new streets which the Commission possesses might be used to open up courts, of which there are a few of the very worst sort. There are cellars, which, like those at Liverpool, are protected by the old Act, and need be only a third of their height above the ground.

There are 13 common lodging houses. The definition accepted is founded on short occupancy, "*a place where any body may go for a night*;" hence there are places where 5 or 6 single men sleep together, and yet as weekly lodgers they escape the common-lodging inspection. Some temporary exigency had interfered with the inspection, and the common lodgings were seen to be rapidly going back into the ways of former times. Here a woman lay in bed; there a man was laid on a bedroom floor. In one house every window was shut (in August). A hamper of vegetables stood in one occupied bedroom; there was boundless filth, and often no sign of tickets. Quin's and Donelly's were bad, and M'Kenna's execrable, while Roche's was the best.

## BIRMINGHAM.

BIRMINGHAM.

The Birmingham corporation is, as a local board of health, the sanitary authority for all the town, except Balsall Heath, in which district there is a board under the Local Government Act, with an independent authority. The Birmingham board, through the borough inspection committee, has appointed Mr. Robert Wolley as borough inspector of nuisances and of common lodgings. He has no other engage-

ment. Under him act four under-inspectors. He reports directly to the committee of the board. A clause in the Birmingham Improvement Act is said to prevent the employment of the police in any of the duties in question. Dr. Hill is the physician consulted by the borough for public purposes, but he has not received any regular appointment as medical officer. Dr. Hill considers it part of his duty to make analyses; also to watch offensive trade processes; to examine bad food; and to abstract and class the cases of disease entered on the books of the public charities. He has not yet met with an epidemic of fever in the borough. The administration works well, mainly, first, through the peculiar advantage Birmingham has in being composed of small "self-contained" houses, and secondly, through the industry and independence of Mr. Wolley. The consequence is, that although the system of inspection is not nearly so regular and exact as in some places, such as Glasgow, Newcastle, or Cardiff, where in many streets nearly every room is a tenement, and the houses are sometimes large and rambling, it seems to be efficient for ordinary purposes, and to admit of expansion in case of a visitation of an epidemic disease. The registered lodgings, although 230 in number, are not generally large, and the number of the poorer population lodged in them is but a small proportion of the people of Birmingham. The definition of a common lodging here hinged upon the *nightly occupancy*. Cases of overcrowding among people received on any other terms were to be dealt with under the Nuisances Removal Act, and the inspector considered the law gave him almost sufficient power. He and the chairman of the committee thought the only reasonable improvements in the law which the authorities could desire were (1) a more speedy process in case of nuisance or overcrowding. The local act in Birmingham is more summary than the general act in its dealings with nuisance, but not with overcrowding; and the inspector found the law was evaded, as in other great towns, by the temporary dispersion and re-formation elsewhere of the crowd between the first service of notice and the subsequent proposed penal proceedings. The officials also (2) desired that the inspector might be admitted judge of the necessity of internal cleaning and whitewashing, without the intervention of a magistrate's order, so that the inspector might get the work done, and recover costs from the landlord on the first hearing. It was explained that many of the landlords were poor shifting people, not easily got at, and apt to pray for delay.

The houses of the wealthier people of former times which remain in the old middle of the town are very few, some having been destroyed by the new streets, and others made into warehouses, and of these few a large proportion are now registered lodgings. I was told that no single-room holding could be found in Birmingham, and that this statement included, with very few exceptions, even the furnished apartments. Positive truth is not to be expected in so sweeping a statement, but I found by examination that it was at least very near the truth, the lowest form of habitation being where two families had a bedroom to each and a kitchen in common. Besides which, the use of a wash-house, belonging in common to the court, is enjoyed by nearly all the poor inhabitants. Every working man can get a small self-contained house at a low rent. As regards the working men's streets there cannot be any very great difference in different parts of a town in every quarter of which are numerous factories, except so far as the colonies may be English or Irish. If English, very few lodgers are found; if Irish there will be one or two in each house, boarding usually as of the family. The ash-midden system extends to by far the larger number of working men's houses.

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Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BIRMINGHAM.

No single room  
holdings.

## APPENDIX.

No. 2.

On the

*Housing of the  
Poor in Towns,  
by Dr. Hunter.*BIRMINGHAM,  
Local Visitation.

In Summer Lane two courts were visited; the rents in one were 3s. in the other 3s. 6d. The houses were three storeys high, having two bedrooms and a kitchen, but no back opening. In 5 of the 11 houses at which I called were 5 adults to each, and in one of these were also 4 children. The 11 houses contained 22 bedrooms, 45 adults, and 23 children. In Water Street 14 houses of a worse kind, let at 2s. 6d., were visited. They were two storeys high, having 2 little bedrooms over the kitchen and closet. In one of these lived 7 adults, in another 3 with 7 children, in another 5 with 2, in another 4 with 3. The whole 14 houses contained 28 bedrooms, 41 adults, and 36 children.

In Church Street was a court of 14 houses let at rents varying from 2s. 7d. to 3s. 6d., and although the reception of lodgers was universally denied there were families of 6 adults with 3 children, and of 5 with 5. The whole 14 houses had 28 bedrooms, in which slept 35 adults and 32 children.

A court in Edmund Street was in worse repair; the rents were about 2s. 11d. 8 houses were visited which had as usual 2 bedrooms, but no back opening. Here the largest family was of 2 adults with 7 children. Here also was found a house of one bedroom let to a couple at 1s. 6d. a week.

In Bromsgrove Street the same class of houses, let at 2s. 9d., were inhabited by large families, such as 4 adults with 3 children, and 2 adults with 7.

The tendency of all cottage rents seemed to be to rise. The cheapest part of a poor Irish quarter called Cheapside was sought. Here the rents were 2s. 4d., with an exception, common in all large towns, that the house nearest the privy was cheaper. In this court lived families of 4 adults with 5 children, 3 with 5, 2 with 6, and 4 with 2, each house having 2 bedrooms. It was impossible to say whether these people were "of one family." Nor does it appear of very much importance, as the legislature could hardly have intended the plea of relationship to be extended to the protection of grown-up cousins. When the union surgeon's return showed the presence of zymotic disease in the locality, an occasional house-to-house visitation had been made, and the Irish lodgers temporarily dispersed.

Worst quarters. There is hardly a "slum" in the whole borough; nearly all the streets are new, the worst houses being about 50 years of age. The police were asked to name the worst streets, and by their direction Alison Street was visited. Here, as elsewhere, the worst houses in the town were not let at the lowest rents in proportion. There were houses to be let at 2s., 2s. 6d., and 3s. Each had two bedrooms, but one house was only 9 feet square. Houses so cheap as 2s. were very rare; one was seen in Court 14, in which lived a pair with 6 children; the rest ranged from 2s. 3d. to 2s. 9d. and had two bedrooms each. Eleven such houses held 38 adults with 24 children, numbers whose very proportions prove the presence of lodgers, indeed in several of these houses were 5 adults. Here also was one little house with one bedroom, let at 1s. to a pair with one child.

Court 10 presented a different character, extraordinary in Birmingham. Here 8 houses which had one bedroom each were visited. All were much alike. One was measured in which lived 5 adults with 4 children, and found to be 13 feet by 11 feet 1. These people paid 2s. a week, and a 1d. for water. They were, or professed to be, one Irish family, but of three generations. In the other houses were 2 adults with 6 children, 4 with 2, and 3 with 3, the whole number of 8 bedrooms containing 22 adults with 25 children. One house was let at 1s. 6d.; the rest at 2s.



In John Street was an instance where a contractor had taken a whole court, had furnished it, and let it in lodgings. There were 6 houses of a kitchen and 2 bedrooms each, the houses being 3 storeys high, and the ground plan 11 feet by 10. Sometimes the kitchen was let with the top room, and in one instance each of the 3 rooms had a separate family. No. 1 contained 2 families of 7 members; No. 2, 2 families of 6; No. 3, 2 of 6; No. 4, 2 of 8; No. 5, 2 of 6; and No. 6, 3 of 7. The rent was 2s. 7d. Even here was no unlawful crowding (the larger families getting the larger accommodation), though of course no one can be blind to the impropriety of all single-room occupancy. There was a wash-house in the court, and here were no clothes hanging to dry from the windows, upstairs washing, one of the greatest evils of single-room tenements, being little known in Birmingham. In another court in John Street were some single bed-roomed houses let at 2s., in which the largest family was of 3 adults with 3 children. Double bed-roomed houses in this court brought 2s. 9d., and held an average of 3 adults with a child or two.

In London-Prentice Street 16 houses were visited; one was let at 1s. 3d. to a pair with 3 children; another at 1s. 6d. to a pair with 4; this measured only 10 feet 8 by 8 feet 11. Other single bed-roomed houses were let so high as 2s. 3d.; in one instance to 3 adults with 4 children. The whole 16 houses had 28 bedrooms let at 35s. 6d. a week, to 47 adults and 34 children. One house was to be let, and empty, yet close by were families of 6 adults, and of 7 with children, in houses of two bedrooms.

The comparatively new houses about Hospital Street are much alike. There are scores of courts of back-to-back houses of 2 storeys, with 2 bedrooms, let at rents from 2s. 7d. to 3s. Court 19, Summer Lane, may be taken as a curious instance. The rents, 3s.; bedrooms, 2; houses, 6. In 5 of these lived 11 adults with 16 children, but in the other were 9 adults with 1 child. The adults were of both sexes, and not related. A visitor may accidentally alight, as I did, on an instance like this; but to exhaust all such in a borough of 300,000 people would require a costly staff, and their rarity seemed to show that circumstances did not in ordinary times call for systematic inspection. Inspection would involve the objectionable nightly visitation of suspected houses, for the truth cannot be elicited without that means, which though highly necessary in towns of large houses sub-let in rooms, may be dispensed with in Birmingham as unnecessary. Nothing has been done under the Labourers' Dwellings Act, and indeed where, as in Birmingham, the labourers are well paid, and have no occasion to crowd to one side of the town to be near their work, the supply of houses may be safely left to ordinary enterprise.

The Birmingham Improvement Act of 1851 incorporates the clauses of the Act of 10 & 11 Vict. c. 34, as to cleansing on medical certificate, and also for the regulation of cellars; but there are not, I believe, any cellar bedrooms at all in Birmingham.

The common lodgings were examined. Tickets were in use, and 250 cubic feet exacted for each head. No returns of numbers accommodated were made. Sign boards were not in use. There was no byelaw against the use of the beds by day, nor were chamber utensils insisted on. There were seldom permanent partitions, but often curtains to seclude the married pairs. The buildings were generally good though small. The price at two only was under 3d. About 20 instances of violation of the law had been brought before the magistrates in the preceding year. It is difficult to judge, by comparison of the number of registered houses with the population, whether the Act

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is pushed with sufficient vigour. The characters of the populations are a difficult part of the consideration; 230 seems a low number of registered houses per cent. when compared to the 1,200 in Liverpool, but, on the other hand, it is high when compared to the number at Portsmouth. It is probable that a certain number, irrespective of the population of the place, is required for the tramps, and that thus the number in towns will vary with the geographical position. The inspector said there were 19 on the register at Worcester. In the larger towns there were few complaints of any difficulty in getting rid of sick people, and in them the supply of water and drainage in common lodgings was generally the best.

*Note.*—A part of extra-urban Aston, adjoining the borough of Birmingham, has no inspector of nuisances. It has therefore become an Alsatia for purveyors of diseased meat, &c., well known to but beyond the powers of the borough inspector. This failure of justice is said to be due to a question whether Aston parish, the inhabitants of part of which have contributed to the expense of the borough inspection, ought to be taxed again as a whole, or divided for this very small purpose into extra and intra-urban rateable districts. The fact being that the slaughter of the diseased animals is not really a nuisance on the spot where it is carried on, but poisons indiscriminately town and country wherever the meat is consumed. On the subject of the want of easy means of expanding the district of a local board where special reasons demand it, the clerk of the Derby board made an useful communication to the late meeting of the Social Science Association.

## BOSTON.

BOSTON.

At Boston the corporation, as a local board of health, has appointed an inspector of nuisances, and has made the chief of police an inspector of common lodgings. There is no medical officer; but Mr. Coupland, who is a magistrate, and also holds several public professional appointments, has certified in a few cases in which the Nuisances Removal Act has been used to prevent overcrowding and the use of unfit dwellings. Overcrowding is very rare indeed in Boston; the population ebbs a little, and many small houses are to be let. There are very few arrivals of sailors, and except a few who pass the night drinking or in brothels, they seldom sleep in houses. There is no sailors' home or other public lodging-house. There are seven registered common lodging-houses accommodating 122 persons, all threepenny houses and usually about half full. The owners make a weekly return of the numbers, which is usually correct, and is registered from their statement, the owners, as a class, being reputed orderly and respectable. Houses in which, as is common, labourers who are not married lodge, *paying by the week, are not considered liable* to registration. The inspector acts as relieving officer for vagrants, and thus an average of three were sent to the workhouse nightly. Registered lodgings had occasionally been closed by magistrates' order in case of prevalent illness. The lodgings seemed clean.

Common  
lodgings.

I visited some of the poorer houses, especially the Irish quarter. In North Street many of the houses were let at 1s. 8d. a week, including water, and consisted of a small kitchen and bedroom. They were usually in bad condition, and often had no back openings upstairs, but there was nowhere any appearance of crowding. A great number were decaying and to be let, and others were let as storerooms.

only. Still they were tenements belonging to one family only, and it was said that no cellar bedroom nor bedroom over a privy existed in Boston, and hardly a bedroom on the ground floor, except for an invalid. Twopence a week is usually paid for water. I found, from a neighbour's information, a house which ought to have been brought under the law. A person named Durant in Witham Street received lodgers into four double beds in the front chamber, and into four double beds and one single in the garret, where there was manifestly not sufficient room. The house was untidily kept. The mistress stated that she had some time before given notice of desiring to be registered, and there was no reason why the house should not have been either registered for a suitable number, or relieved of the excess by an information. I visited a row belonging to Mr. Spurr, and called Shoemaker Row. There were nine houses of a kitchen and bedroom each. They were very small and low, and had no back opening. The rent was 1s. a week. Four of the nine houses only were occupied; they were not much crowded. The privy was neglected. In this case the 13th section of the Nuisances Removal Act has been invoked. Information was made that on certain premises there existed "the following nuisance, namely, great dilapidation of the said premises, and a want of sufficient ventilation and privy accommodation, and that the same was caused by the act or default of, &c." The magistrates made an order to prohibit the using of the houses until rendered fit for human habitation, and fined the offender 10s. a day. There was medical evidence of present disease. The privy was described as unsafe to enter; the roofs as dilapidated; the rooms as 9 feet by 8 feet by 5 feet high, and the alley between the houses and a high wall opposite the front as 8 feet wide. The magistrates' acting clerk informed me that the fine would only be exacted in case of contumacy, and after another hearing. In this case the information and the evidence was rather multifarious, while the order which ensued is rather too brief for the defendant to understand what is expected of him. The grave parts of the charge against the houses is the smallness and the want of ventilation, but it is probable that the magistrates' decision was based on the ruinous and filthy condition of the privy. The owner was busy limewashing, and would repair the privy, but he cannot improve the houses, and if the magistrates' order has any force he had best remove them; they ought never to have been built.

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Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BOSTON.

Action under  
the 13th sect.

## BRADFORD.

The matter of chief interest in Bradford is the operation of the byelaws made by the corporation as a local board under the Local Government Act. Ever since the adoption of the act the board has from time to time endeavoured by more stringent rules to raise the character of the houses built for the labouring people. The history of this proceeding is detailed in the report of the committee, and is interesting, though not important, in considering the present condition of the borough. The sixth byelaw has practically the effect of forbidding the building of back-to-back houses in groups of more than two pair together. This result is brought about by the following words:—

BRADFORD.

Strict ad-  
ministration.

"6. Every building to be erected for the purpose of being used as a dwelling house shall have, either entirely at the rear thereof or of some part thereof, or entirely at the side thereof or of some part



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thereof, an open space adjoining and exclusively belonging thereto, to the extent at least of one hundred and fifty square feet, free from any erection thereon above the level of the ground, and exclusive of any ground used in common for two or more dwelling houses; and the distance across every part of so much of such open space as is required to make up one hundred and fifty square feet between every such dwelling house and the building or property on the opposite side of such open space shall not be less than *ten feet*. If such dwelling house be *two stories* in height above the level of such open space, the area of open space to be left shall not be less than one hundred and eighty square feet, and the distance across every part of so much of such open space as is required to make up one hundred and eighty square feet shall not be less than *twelve feet*; and if such dwelling house be *three or more stories*, such open space shall not be less than two hundred and twenty-five square feet, and the distance across every part of so much of such open space as is required to make up two hundred and twenty-five square feet shall not be less than *fifteen feet*. *Provided always*, that the area of open space in each of such cases shall not be less than one fourth of the area of the ground covered by the dwelling house for which the same shall be left.

"In determining, in the case of a dwelling house of an irregular figure, whether the requirement as to the width across the open space to be left, pursuant to this byelaw, be complied with, such open space shall be considered to be at the rear or side, respectively, of such dwelling house, according as the rear or side, or some part of the rear or side thereof, presents the greatest length of frontage to such open space."

The effect of this 6th byelaw is the principal question for consideration in Bradford, as very opposite effects are expected by different persons representing parties in the borough, and all the visible conditions of overcrowding or insufficient shelter are by some referred with at least a show of reason to the law. Thus the whole question of the use of back-to-backs had to be considered in the inspection of Bradford, and very little of local peculiarity was observed which could be urged against Bradford being used as a typical example of the general operation of such a byelaw as this No. 6. One peculiarity, however, must be mentioned, as of vast importance to the part of the town concerned, but which only affects one part in reality, although it adds to the heat of a common feeling against what is alleged to be an oppressive action. The corporation, under their Improvement Act of 1850, and under the Local Government Act, exercised the right of examining and sanctioning new roads or streets laid out in the borough. The Low Green estate was thus laid out under sanction, with streets for building now called Crowther Street, Marshall Street, Osborne Street, Paisley Street, and others. Drains were made and kerbstones laid, but the width of the blocks was intended for back-to-backs, and was plainly either too wide or too narrow for single houses, unless they were of a large superior kind, for which the neighbourhood was unfitted. When the new 6th byelaw was made the owners of these streets were not exempt from its action, and they have been unable to make use of their property since, although they were represented to be willing to build in accordance with the original intention which had received the sanction of the board. Among these persons one, probably expecting a relaxation of the byelaw, had commenced two houses on such a plan that they might easily be converted into four back-to-backs. The board, thinking perhaps that this conversion might be clandestinely made, refused

Alleged hard  
case.

him permission to finish the houses, and they now stand roofless and abandoned.

Besides these persons there are many who do not choose to build according to the byelaw, and who, declaring their willingness to build back-to-backs if the board will consent, assert and maintain in many published calculations that houses can be built on no other system at rents sufficiently low for the expected tenants.

Mr. James Drummond said he had sent in plans for 200 houses adjoining his dyeworks, for the use of his men. The plans were refused, and Mr. Drummond declines to build others. This was not an instance of a speculative builder, but of a large employer anxious to accommodate his men. The houses appeared to be as good as back-to-backs could be made. They resembled those in Cobden Street, Villiers Street, and Bright Street, and no fault could be found with them except that they did not conform to the byelaw.

The authorities considered this omission to conform to their byelaw a great failure of duty on the part of the millowners. As to the little speculative builders, many of the corporation were rather glad than otherwise to think they would be extinguished.

The number of houses of which the plans were sanctioned in the year ending September 30, 1864, was 273,\* but of these only 24 were of less than four rooms (gross)†, or 49 of less than five. The remainder were for the competent class, and these, with the details of 72 mills, &c., 15 churches and chapels, 3 public buildings, and 13 new streets, all passed in one year, form a curious contrast with the supply of cottages. Of 315 plans offered 49 were rejected.

The objections to back-to-backs, which are generally agreed on, are, 1st, the difficulty of placing the privies, and, 2nd, the difficulty of obtaining a through draught. In other respects, the back-to-back system is allowed to be well suited to small incomes, on account of its cheapness. This cheapness is not found in back-to-backs in groups of four houses each, such as the byelaws will permit, because the outer walls require to be of much better quality than the party walls would, and the consumption of dear frontage is greater.

Builders have frequently proposed pipe plans for ventilating back-to-backs. On such schemes this report is not intended to enter, but experience of such houses teaches that there is not in the kitchen or "house" any want of through draught, because people who inhabit such constantly maintain a kitchen fire. The same cannot be said of the bedroom; but condemnation of a bedroom for want of through draught on that floor would fall on some of the bedrooms in almost every large house in the country. It is being overnice to exact more than a door, a fireplace, and a window in a bedroom.‡ There can, however, be no doubt that, if not purchased too dear, a through ventilation is desirable. As to the situation of the privies, in the back-to-backs they are (in Bradford) placed opposite the front or only house door; in

\* The borough of Leeds is said to have more largely increased during the last four or five years than any other in the West Riding; for in 1860 the council sanctioned the erection of 500 houses; in 1861, of 863; in 1862, of 978; in 1863, of 1,303; and in 1864, of 1,456, showing a gradual increase.

† Including "cellar, scullery, and attic." Cellars and attics seldom form part of a cottage residence, and where they do they, together with the scullery, are often used in Bradford as bedrooms.

‡ A skylight at the top of the stairs would probably relieve the whole cottage of any want of draught. A great many bedrooms in large houses have no chimney even.

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the "through" houses they are placed close to the back doors; and perhaps there is no difference in these positions as regards the health and comfort of the tenant. But in the better streets of Bradford the privies in front of the houses, with small gardens intervening, are alleged to be a nuisance to passers by, and this, if the fact be true, is a very reasonable objection. It must be remembered that this objectionable part of the matter is not necessary; it is hardly known in Sheffield, for instance, where the privies usually stand in yards, which are no thoroughfare, and are approached by frequent entries boring through the houses. It is not necessary, moreover, that the back-to-backs should be in long rows. Rows of 8 or 10 might be separated by a cross street, with advantage to health and comfort. In Cobden Street which was visited the houses were back-to-backs of kitchen, bedroom, and garret. The rents were about 4s. a week. The privies were sunk a few steps at the end of the garden, so as to be concealed by a low wall which separated the garden from the street.

Byelaw  
followed by  
suspension of  
building.

The 6th byelaw was made in April 1862, and since that time very few small houses have been built. The reason of this is the subject of much discussion, but the general statement seems to be admitted, and the exact number is not to be easily ascertained. It was confidently stated that hardly any had been built, except on Great Horton Road, where were 30 or 40 built in conformity with the byelaw, and to which the committee invited attention as examples of successful buildings for the poor on the *through* system, and yet at a cheap rate.\* Considering that this is a report on overcrowding and the use of unfit dwellings, it would be foreign to it to describe the benefits received by other parts of the town, if the evils of the overcrowded, poor, and unfit part are aggravated by laws meant to improve the new and opulent part. The council had the present miserable Bradford to deal with as well as the future suburbs, yet unbuilt, and perhaps now that they are deprived by the judgment in *Burgess v. Peacock* of the byelaw, which was supposed to control condemnable old property, they might wisely relax a little of their strictness in the suburbs for the relief of the centre. However this may be, it may be reported that the rows of houses in Horton Road were very good indeed. The front and back doors were said to cause draughts (of which a factory population are much in fear), and the chimneys in consequence not to draw well, and this was all that could be said against them. The report of the committee stated that these houses were let at 3s. 6d. a week including rates, and the experiment had seemed completely successful. But personal inquiry put another face on this matter. One tenant said that there was "an understanding" that some of the family should work at a mill adjoining, the property of the same owner, and certainly a large number of mill hands were found to reside here on very small space. The rent had been raised 2d. a week since the committee's report; but the rent was of little consequence; the owner of a large and costly mill thinks little of the cost of a few score of cottages. The tenants of the mill said the owner "would not deal handsomely" if he did not accommodate the hands with cottages. His partner said he was often asking for cottages, and he believed the new were built at his solicitation.† Mr. Tetley, the owner, said the cots were built for

Alleged  
exception  
examined.

\* See page 18 of their report for 1864.

† One of the borough councillors was good enough to visit for me these houses in Horton Road after I had left. In 30 houses were 199 persons, or 6.63 to a house, of whom no less than 82 worked at the mill. There were instances of 9, 10, and 12 in a house, and of houses supplying 5, 6, or even 7 persons to the mill. How small a



the mill, and that they cost 150*l.* each, including the ground ; a cost which would in every respect be greater had the building to be repeated in 1865.

Having disposed of this, the only considerable exception, it must be admitted that a cessation of building cottage houses has followed the passing the byelaw, and also that (on the evidence at least of Mr. James Drummond) there would have been building had it not been for the byelaw. Whether there would have been much building is a debated question, on which much is said by both sides, and on which it can only be reported here that two more gentlemen largely interested in accommodating their own workmen were said to be unwillingly restrained by the byelaw ; that public buildings, warehouses, and good houses are everywhere rising with unexampled rapidity ; and on the other hand that Mr. Neil, a great builder, who had obtained permission to build 60 back-to-backs before the passing of the byelaw, with the intention of selling them in lots as he built, has not yet seen sufficient reason to commence building, and ascribes the cessation of building to the heavy rates charged on cottages.

The gentlemen who represented the majority of the council, and who may be confidently reported to be moved by no desire to enhance the value of standing property by limiting the supply, but to be simply desirous of doing their best for the town, thought that few could be deterred from building by so reasonable a byelaw, but admitted that it was a matter for speculative opinion ; still they said " it is worth while " to endure pressure for a time to maintain a beneficial law, and as " soon as all doubt of its being maintained vanishes there will be " plenty of cottage builders." These gentlemen, among whom the reporter was favoured with the opinion of the mayor, had, however, an insufficient knowledge of the present suffering ;\* although they had felt it so much as to suspend the action of the law both as against cellar bedrooms and against crowding, in order to maintain the 6th byelaw. They seem to have been misled by a return made to them on the number of people found in certain districts on inspection, which was calculated to lull them to a false security. Last year, the committee on the subject reported, " there is no evidence whatever of any " crowding of families into one house, but on the contrary there is a " decided improvement in this respect since 1851."† To this report the surveyor still held in 1865.

It seemed that 1,119 houses had been visited, and found to contain 4·77 inhabitants to a house, and these houses were produced as samples of the town. Cottages had been destroyed in improvements, and very few had been built ; the births and deaths were rising ; trade had never been so brisk ; but still this re-assuring computation, which showed an increase of house accommodation, was accepted without doubt. The attention of your reporter was awakened to its fallacy (as a representative quotation) by the result of a nightly inspection

## APPENDIX.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BRADFORD.

Feeling of  
local autho-  
rities.

False security.

proportion the profit of the rent of 30 houses would bear to the profit on 82 pair of hands may be readily guessed.

Of 25 tenants whom he consulted, who had thus tried both sorts of houses, he reports 21 to have expressed preference for the old system of back-to-backs.

\* Some said that people would still crowd in cellars, whatever accommodation was offered them. This is contrary to the experience of other Yorkshire towns, and was denied with one voice by the people alluded to.

† Committee's Report, page 21. This negative evidence is derived from certain streets, which are, however, understood to be illustrative instances ; unless the districts there presented may be taken as samples, the return and report upon it are equally valueless.

APPENDIX. which the chief constable ordered at his request in the Leys, without selection of houses.

No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.	No.	No.	No.	No.	No.	No.
	of House.	of Rooms.	of Inmates.	of House.	of Rooms.	of Inmates.
	2	3	7	17	4	22
	3	4	7	18	2	5
BRADFORD.	4	3	10	19	4	22
	5	3	14	20	2	8
	6	2	13	21	4	13
	8	2	12	22	2	5
	9	2	9	23	2	3
	10	2	5	25	2	8
	11	2	5	27	2	4
	12	2	5	29	3	12
	13	2	10	30	3	8
	15	2	3			
	16	4	8	24	63	218

The population had been, in 1861, 106,000, the inhabited houses 22,500, the uninhabited houses 1,751. In November 1863, two years and a half after the Census, the number of uninhabited houses was reduced to 27. All the houses have long since been occupied. The positive number of poor houses is reduced, and there are all the circumstantial reasons for believing that the influx which filled the 1,700 houses in two years and a half continues, but is condensed within a rather reduced amount of accommodation.\*

Summary of  
night census.

The results of a desultory search made by your reporter for instances of overcrowding are superseded by a more systematic inspection made through the courtesy of chief constable Grauhan, in the night, and in certain previously named streets, without selection of houses. I subjoin (see App.) the Table in which his results are stated. It requires to be examined in full, and attention may be drawn to it by the following summary of the facts it contains :

In Duncan Street, 63 houses containing 153 rooms, together with 29 cellars of one room counted as separate tenements, and forming the whole house of some poor family, held 499 persons, 134 of whom dwelt in these cellars, sometimes at the rate of 8 or 9 to a cellar. Houses of two rooms frequently occur with eight and nine inhabitants each.

In Clifford Street, 68 houses containing 152 rooms, together with 18 cellars of one room each, held 489 persons, of whom 82 dwelt in these cellars only, sometimes at the rate of 7 or 8 to a cellar. Houses of two rooms were here found to contain 10 and 11 persons ; a house with two bedrooms contained 12.

In Adelaide Street, 54 houses of 161 rooms, with 20 cellars of one room each, held 430 persons, of whom 91 dwelt in these cellars only, with instances of 7, 8, or 9 to a cellar. Houses of two rooms held 9, 10, and even 12 persons.

In Caledonia Street, 55 houses of 135 rooms, with 20 cellars of one

\* Mr. Hole's "Homes of the Working Classes" contains an able argument in favour of public interference with the back-to-back system, and Bradford is one of the towns chosen to illustrate his views, see p. 36 of his work. But he seems to me to fail in establishing the identity of *back-to-backs* with the *unfit dwellings* he condemns, and while he justly says that it is the interest of labourers to pay as high a rent as they can afford, he has not prepared an answer to the objection that there were no houses either unoccupied or building for the labourers, however willing they might be to pay. His whole argument should be read.

room each, held 455 persons, of whom 97 dwelt in these cellars only, with instances of 8 or 9 to a cellar. Houses of two rooms had their 10 occupants.

As to what the cellars are, your reporter and the inspector of common lodgings (a good authority) do not think one can be found in the town which fulfils even the meagre requirements of the Public Health Act. No one knows how many of these cellars exist. When the town was traversed they were found in all directions, and the number may be guessed from these few streets to be many hundreds, if not thousands. In Ebenezer Street some were seen which had been closed by law in former times, but which were reopened and tolerated. Many of them had partial areas. The inhabitants paid rents varying from 1s. to 2s. 6d. a week. They seemed pretty well off in food, and without exception, all said they would pay to get a house if they could find one. Those conversed with without exception considered the scarcity of houses as the artificial effect of the 6th byelaw, and many were intelligent men, good judges of working men's position and surroundings. The collecting agent of a popular insurance company said he had lately met with 16 persons living in a single bed-roomed house, No. 59 back, Wellington Street, Wapping, and has supplied the annexed list.\* The cellars teemed with people in nearly every house about Upper and Lower West Street. Such was the demand hereabout that one house of three rooms and a cellar was let for 7s. 2d. a week, and the tenant let off the cellar at 2s. 6d. In the Leys a house of two rooms was let at 2s. 6d., though the whole kitchen window was gone.

In Four Street, Threadneedle Street, the house of Mr. Durham was called on. He had joined two cottage houses into one. Here your reporter counted nine beds. One privy supplied this house and three others.

## APPENDIX.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BRADFORD.  
Cellars.

Visitation of  
town.

## \* COLLECTING AGENT'S LIST.

*Houses.*

Vulcan Street, No. 122	-	-	1 chamber	-	16 persons.
Lumley Street, No. 13	-	-	1 "	-	11 "
Bower Street, No. 41	-	-	1 "	-	11 "
Portland Street, No. 112	-	-	1 "	-	10 "
Hardy Street, No. 17	-	-	1 "	-	10 "
North Street, No. 18	-	-	1 "	-	16 "
North Street, No. 17	-	-	1 "	-	13 "
Wymer Street, No. 19	-	-	1 "	-	8 adults.
Jowett Street, No. 56	-	-	1 "	-	12 persons.
George Street, No. 150	-	-	1 "	-	3 families.
Rifle Court, Marygate, No. 11	-	-	1 "	-	11 persons.
Marshall Street, No. 28	-	-	1 "	-	10 "
Marshall Street, No. 49	-	-	3 "	-	3 families.
George Street, No. 128	-	-	1 "	-	18 persons.
George Street, No. 130	-	-	1 "	-	16 "
Edward Street, No. 4	-	-	1 "	-	17 "
George Street, No. 49	-	-	1 "	-	2 families.
York Street, No. 34	-	-	1 "	-	2 "
Salt Pie Street (bottom)	-	-	2 "	-	26 persons.

*Cellars.*

Regent Square	-	-	1 cellar	-	8 persons.
Acre Street	-	-	1 "	-	7 "
33, Robert's Court	-	-	1 "	-	7 "
Back Pratt Street, used as a brazier's shop	-	-	1 "	-	7 "
27, Ebenezer Street	-	-	1 "	-	6 " (no male above 18).



## APPENDIX.

No. 2.

On the

*Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BRADFORD.  
General Acts  
set aside to  
maintain bye-  
law.

In East Brook Lane is a property of six houses of one bedroom each, and a beerhouse. The six cottages held 13 families. The whole property had but one privy.

In Vincent Street is a row of houses, some of a single room each, and some of two. The smaller were let at 1s. and 1s. 4d., and in one were seen two beds. In another of two rooms were five beds. For one such house 3s. a week was paid.

Under such circumstances, offenders may defy law against any sort of overcrowding, and the authorities dare not interfere, lest they should give colour to the common allegation that their action is in part the cause of this great difficulty in finding shelter. Nothing is done under the 13th or the 29th sections of the Nuisances Removal Act, and the spirit of the Common Lodgings Act does not run in the administration of that department, although the officers seem to carry out their orders pretty well. The town clerk said, that informations against cellar bedrooms were liable to be defeated by an evasion about the receipt of rent unheard of elsewhere;\* and Mr. Binns, chairman of the committee who control common lodgings, protested he could not turn people out of their only shelter. He and the mayor and other gentlemen of influence no doubt feel acutely the suffering which is brought under their notice; but, until now, they have not had anything like an adequate notion of its extent. That it is *in part* due to the operation of the 6th byelaw is proved; whether it is too dear a price to pay for a future improvement in suburbs, which will, perhaps, never be built, must be left to the council's mature judgment; but your reporter is of opinion that no one can hope to see the day when all Bradford will be lodged so well as those who live in the back-to-back houses of Cobden and Villiers Streets, or would be lodged in the houses offered by Mr. Drummond. The difference between the new houses in Horton Road and these is a mere shadow compared to that between the worst of these and the best of the rookeries, slums, and cellars of the present old town.

Common  
lodgings.

As might be expected, prosecutions under the Common Lodgings Act have almost died away, yet most of the houses were in decent condition, and the register was well kept, the last new entry having been on 28th January 1865. A weekly return was made by the owners. There were 50 common lodging houses, able to receive 676 persons, but the nightly average was only 466, of whom two thirds were males, and the proportion of children small. There were prosecutions on 22nd June and 27th November 1863, and again on 28th July 1865, when Bacigalupo was fined 10s. and costs for taking too many lodgers.

The houses were well ticketed and generally clean. 300 cubic feet per head were exacted.

Hudson's (56 beds), Ludgate's (17), Hutchinson's (28), were clean houses. Priestly Hall (30) was decent, so was Dunn's (14). At John Nicholson's (30) there were 3 beds in a damp cellar kitchen five steps below the surface; 2 more were in a paved kitchen above. The beds were clean, but the house was untidily kept, and two persons were at work in bedrooms. Gladwin took 14 lodgers, and had no yard at all.

Bacigalupo's was generally dirty and untidy, though some of the beds were very clean. At Anderson's (19) a regular trade of sorting rags was carried on in the house, with no shop or warehouse. Mit-

\* In 1863, when cellar dwellers were comparatively few, some prosecutions were made, and a register commenced.

chell's, Lally's, and Lanigan's were untidy houses. Clarke's was made up of 3 cottages of 2s. rent each, and held 32 persons.

Mosley's was an abominably neglected place. Early in the afternoon of a very hot day, in the garret, the window was shut and the urinal bucket stood full. In the chamber the window was shut, a man was in bed, and a bucket used as a night-stool as well as urinal stood full. On the ground floor were 5 beds; the windows shut, and the pots full. The privy was filthy. The owner was engaged out all day, and the care was left to a slatternly deputy.

With a few exceptions, the emptying of privies and ash-middens was performed.

The inspectors of common lodgings, who divide the town into two districts, do not go into unregistered houses on suspicion, and indeed do not make the necessary efforts to bring all the lodgings under the law. For this they are not personally responsible. Not only have weekly lodgings been exempted from the operation of the Act, but even beerhouses have been allowed to plead their licence as barring action against overcrowding. One such lately had 32 beds and received 60 or 70 persons, yet in the present state of affairs nothing was done, until Mr. Grauhan actually proceeded against it by indictment as a nuisance, in his character of a neighbouring householder.

The inspector of the west district thought there were about 250 cellar bedrooms in it. This is either an under statement through original error, or the number has much increased since the calculation was made.

## APPENDIX.

No. 2.

*On the  
Housing of the  
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BRADFORD.

In addition to the letter which will be found appended, Mr. Gott, the borough surveyor, has, since the present report was compiled, supplied the following table, which seems to indicate that the demand for houses is likely to overcome all difficulties. It must be remembered that these are numbers of plans, not of houses erected. Of 113 back-to-back houses sanctioned before 1860, and yet unbuilt when the new byelaws were made, only 16 have been since erected. The number of plans for cottage houses of 4 rooms and under which were sanctioned in 1863-4 was 49, and in 1864-5 was 149.

The whole number of plans deposited and approved has been—

	1858	1859	1860	1861	1862	1863	1864	1865
Deposited	- 166	166	185	160	198	224	315	360
Approved	- 144	147	174	141	173	201	266	345

The number of dwelling houses and other buildings included in the plans approved of during the past year, as compared with several preceding years, is—

	1854	1857	1858	1859	1860	1861	1862	1863	1864	1865
Dwelling houses	- 598	410	202	234	234	111	233	153	273	429
Warehouses, mills, &c.	- }	26	21	3	15	24	17	28	34	72
										69

Some additional data supplied by the courtesy of Dr. Bell are here presented. The locality of which he speaks is not that to which the police report refers. Dr. Bell's report therefore aids in showing how general and widespread is the insufficiency of house accommodation of even the meanest quality. Dr. Bell says—

I may say that, although my inquiry does not embrace so large an area as might be desirable, yet I think it may fairly be taken as an indication of the condition of many similar parts of the borough.

## APPENDIX.

No. 2.

*On the  
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BRADFORD.

Vincent Street, Green Aire Place, and the Leys, include 223 houses having 1,450 inhabitants, 435 beds, and 36 privies. The average number of persons to each house is, in Vincent Street, 6·2; Green Aire Place, 5·7; The Leys, 9·5. Eighty-two houses have more than one family in each. Thirteen houses, mostly only of two rooms, have more than two families in each. Thirty houses have from ten to twenty-two persons in each. In one small cellar, measuring 1,500 cubic feet (only sufficient for three persons) there are ten. In a confined back yard is another house of two small rooms, each of about 600 cubic feet, in which there are seven persons, six sleeping in one room only large enough for one person. Abutting against the house, at right angles to the window, are two privies, without doors, for the convenience of eighty persons. The average number of persons to each privy is forty. Some are for the convenience of from fifty to nearly one hundred persons; and if anything can be worse than this, there are inhabited houses without any conveniences of this kind. Ashes and all impurities are thrown on the footpath, and allowed to accumulate within three yards of the door.

The beds—and in that term I include any roll of dirty old rags, or an armfull of shavings—have an average of 3·3 persons to each; many have five and six persons to each, and some people, I am told, are absolutely without beds; they sleep, in their ordinary clothes, on the bare boards—young men and women, married and unmarried, all together.

I need scarcely add that many of these dwellings are dark, damp, dirty, stinking holes, utterly unfit for human habitations; they are the centres from which disease and death are distributed amongst those in better circumstances who have allowed them thus to fester in our midst.

At the Bradford board of guardians, in September 1865, Mr. Metcalfe, one of the relieving officers, called the attention of the board to the case of three families living in Greenaire Place, Silsbridge Lane. In one house, where fourteen persons lived and slept in two rooms, and had only three beds, typhus fever had made its appearance. With reference to this matter, a letter from Dr. Bell was read, dated September 6th, 1865.

Dr. Bell says,—

Last week I drew the attention of the board to the dreadful and preventible mortality amongst my union fever patients, which I attributed to defective nursing, and I may add overcrowding. Since then I have attended several additional cases of considerable severity. The first is that of Brannan, Greenaire Place. He is now very ill, and not fit to be removed; his wife, who has also been very ill, is now convalescent. 2d. Bridget Rogers, in the same house as Brannan; she is dangerously ill, and not fit to be removed. 3d. Patrick Dunn, his wife, three sisters, and child, in Albion Street, all very ill; Dunn and his wife are not fit to be removed. The causes of the fever in all these cases are most likely the same, viz., overcrowding—(in Brannan's house there are fourteen persons, and only three beds; in Dunn's house nine persons with three beds)—defective drains, and uncleared privies and ashpits. At present the probabilities of their deaths are fourfold above the general average, and in case any should terminate unfavourably, might fairly be attributed to neglect.

It was resolved that a copy of Dr. Bell's letter, so far as related to the subject of overcrowding, should be sent to the sanitary committee of the town council, with a request for their assistance in the removal of the evil.

At the next meeting a correspondence was read with reference to the case of the fever in Greenaire Place. The clerk had been directed to bring the case before the sanitary committee of the town council. The town clerk had replied, on behalf of the sanitary committee, stating that the committee had given instructions to the nuisance inspectors to take the necessary measures for removing the evils complained of.



## APPENDIX.

RESULT of a NIGHT INSPECTION of PARTS of BRADFORD by the POLICE.  
DUNCAN STREET.

House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
No. 1	cellar	4	No. 67	cellar	8
3	2	3	69	2	3
5	2	8	71	cellar	4
7	cellar	6	51	2	6
9	3	6	79	cellar	6
11	3	6	86	cellar	2
13	8	10	88	cellar	2
17	cellar	4	92	cellar	8
25	2	6	90	cellar	3
27	2	6	94	cellar	2
29	2	4	96	cellar	3
31	2	8	92	2	9
33	3	6	96	2	7
35	2	7	68	2	5
37	cellar	5	64	6	14
39	cellar	3	62	2	9
41	cellar	5	52	3	4
77	2	6	56	2	3
75	2	4	54	3	4
73	2	7	60	cellar	4
83	2	5	51	cellar	6
85	2	7	46	4	5
87	2	9	41	3	8
93	2	4	48	2	5
89	2	4	50	cellar	5
91	2	6	54	3	5
93	2	4	52	3	4
102	2	8	26	3	4
100	2	11	30	cellar	5
78	2	9	48	cellar	4
76	2	6	36	2	3
98	2	6	24	3	8
84	2	9	34	2	8
82	2	8	36	2	3
86	2	8	42	cellar	4
74	2	8	10	cellar	3
43	cellar	2	22	2	4
45	5	9	20	3	3
42	2	2	10	2	3
51	2	4	4	cellar	3
53	3	10	5	2	3
55	cellar	4	18	cellar	2
57	2	5	12	2	3
59	cellar	5	16	1	3
61	2	8	14	2	3
63	cellar	2			
65	2	3			
			92	182	499

## APPENDIX.

No. 2.  
On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.  
BRADFORD.

## APPENDIX.

## CLIFFORD STREET.

No. 2. On the	House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
<i>Housing of the Poor in Towns, by Dr. Hunter.</i>	No. 1	cellar	3	No. 72	2	8
	5	4	6		2	5
	7	2	3		cellar	3
BRADFORD.	11	4	9		cellar	5
	13	2	5		cellar	4
	15	2	6		2	8
	17	2	11		2	10
	19	2	3		cellar	7
	21	2	6		cellar	4
	23	2	6		cellar	2
	25	2	9		2	3
	27	2	6		3	6
	29	2	7		cellar	8
	31	2	7		cellar	6
	32	2	6		3	7
	35	2	10		3	6
	37	2	3		cellar	5
	40	cellar	2		3	7
	45	2	4		2	9
	47	2	5		2	5
	49	2	6		4	10
	51	2	5		2	4
	52	2	7		cellar	5
	53	2	6		2	6
	55	2	6		4	3
	108	4	2		2	6
	110	2	4		2	6
	114	cellar	3		3	8
	106	cellar	3		2	5
	104	2	5		2	7
	102	2	6		2	3
	116	cellar	5		2	6
	120	2	7		3	7
	116	1	5		2	7
	114	3	7		2	4
	93	3	7		2	4
	96	cellar	5		2	3
	94	cellar	7		2	5
	92	3	8		cellar	2
	80	2	8	122	2	7
	79	2	9	124	2	2
	100	1	5	16	2	12
	76	1	3	15	3	
	74	1	3			
				86	170	489

## ADELAIDE STREET.

House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
No. 1	6	10	No. 5	2	1
2	2	7	7	2	6
3	2	5	9	2	7
4	cellar	4	10	8	5

Adelaide Street—*continued.*

## APPENDIX.

No. 2.  
On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.

BRADFORD.

House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
No. 11	2	5	No. 48	2	3
12	2	6	49	2	10
13	6	6	50	2	4
14	2	5	51	2	3
15	cellar	5	53	4	12
16	2	9	54	2	12
17	cellar	2	55	4	7
18	2	8	56	2	8
19	3	6	57	cellar	2
21	3	6	58	2	6
22	cellar	6	60	3	6
23	4	6	61	3	2
24	cellar	5	63	3	2
25	4	10	64	5	11
26	cellar	3	65	3	1
27	2	5	66	cellar	5
28	2	7	68	cellar	4
29	2	9	69	cellar	2
30	2	7	70	cellar	5
31	2	4	71	cellar	5
32	2	3	72	cellar	9
33	cellar	4	73	cellar	4
34	2	5	74	cellar	5
35	cellar	3	75	cellar	8
36	2	5	76	cellar	7
38	2	3	77	3	2
39	3	6	79	3	10
40	2	4	81	3	9
41	7	8	82	3	8
42	2	7	83	5	8
43	2	8	84	8	15
44	2	3	87	5	4
45	cellar	3			
46	2	4	74	181	430

## CALEDONIA STREET.

House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
No. 3	8	11	35	cellar	5
7	2	8	27	cellar	7
5	3	4	31	3	9
11	2	7	25	2	3
13	2	3	37	2	6
—	3	7	39	2	4
—	3	3	53	cellar	2
9	2	7	55	cellar	7
13 <sup>a</sup>	2	2	51	cellar	4
43	2	3	47	cellar	6
—	cellar	8	41	2	2
—	cellar	3	43	3	7
2	2	3	45	2	2
33	2	4	47 <sup>a</sup>	2	8



## APPENDIX.

Caledonia Street—*continued.*

No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.	House.	No. of Rooms.	No. of Inmates.	House.	No. of Rooms.	No. of Inmates.
BRADFORD.	No. 57	2	6	19	3	7
	61	4	5	17	2	3
	63	2	4	15	2	6
	65	2	4	13	2	5
	71	cellar	2	11	2	6
	67	2	7	1	2	6
	69	2	8	3	2	7
	75	2	7	5	2	10
	77	3	12	7	2	6
	87	3	8	9	2	3
	85	3	9	1	cellar	4
	79	cellar	3	3 <sub>a</sub>	cellar	2
	83	2	8	5	cellar	2
	91	2	4	7 <sub>a</sub>	cellar	8
	113	3	6	9	cellar	5
	111	3	5	11	cellar	4
	109	cellar	3	13	cellar	9
	116	2	2	15	cellar	7
	118	2	5	19	cellar	6
	120	2	9	18	2	5
	122	2	9	16	2	8
	124	2	10	14	2	6
	126	2	9	10	2	8
	130	2	6	8	2	8
	132	2	10			
	134	2	8	75	155	455

Mr. Gott, the borough surveyor, in October 1865 wrote on the subject in explanation of the proceedings of the authorities.

"The report was written in February 1864, and was the result of inquiries made during the three months previous. The figures and information refer therefore to a period now two years ago.

I enclose also a copy of the report of the building and improvement committee for 1864, in which I have now placed in "red" the corresponding figures for the present year. These figures complete the statistics to the present time, and show the nature and extent of the building operations in the town since the date of the report of the committee.

The number of back-to-back houses yet unbuilt, for which plans were approved, during 1857 to 1860, four years before the present byelaws came into operation, is 113, only 16 of these houses having been built during the last two years.

It is necessary to remark that the figures contained in the table showing the number of rooms in each house includes the cellar, scullery, and attic, and that, adding one sitting room and one bedroom, would give five rooms. The number of houses containing five rooms and under must therefore all be considered as tenements of the smallest class.

The above figures, when compared with those for the past 7 or 8 years, show that the tide has turned, and is now unmistakeably advancing, whatever may have been the cause of the decline in the building of houses.

That this change is taking place in due time I think a careful consideration of the facts will fully show. In 1861, when the census return was made, the number of unoccupied houses was 1,751, and it was not until the end of 1863 that all these houses were occupied. It cannot therefore be more than two years ago since the demand for houses began to overtake the supply, and

assuming that the increase of demand has continued during the last two years in the same ratio there would now be required about 1,000 houses more than have been built. Bradford contains 25,000 houses, and would therefore be well able to accommodate for a time such an extra population without any inconvenience which would be likely to lead to very serious consequences.

In reference to the overcrowding of houses in the town, I have also since your visit made some inquiries, and I do not find that there is anything of an exceptional character which is likely to lead to results prejudicial to the sanitary state of the town.

That there is a scarcity of houses is certain, and there must necessarily be a number of houses occupied by more than one family; but amongst the respectable part of the working population, who keep their houses clean, and are able to obtain good food, there is no reason to suppose that this will lead to results seriously prejudicial to health, and it is amongst this class chiefly that the demand for more houses exists. It is of course highly important and desirable that every family should be able to have a separate house, but it is not less important that the house should contain such accommodation, and be built under such conditions of sanitary requirements and ventilation, as to admit of a proper and healthy existence.

It is well known that in all large towns there are localities in which the poorest classes of the population herd together, and that in these localities many instances can be found where houses are not only overcrowded but are in every other respect unfit for healthy occupation.

This state of things is no doubt very unsatisfactory, and remedial measures are urgently wanted, but these must be very different from the building of houses.

Your attention when in Bradford appeared to me to be specially directed to some of these localities, and you also appeared to be partly impressed with the idea that this state of things was in some way or other a consequence of the scarcity of houses in the town. This I am quite sure you will see to be a mistake, because in the beginning of 1861, before the building byelaws had come into operation, and when there were nearly 1,800 houses unoccupied, these localities were practically in the same condition, and in fact they always are very much in the same state, varying somewhat during different periods of the year, and with the depression or activity of the trade of the district.

Of course I do not mean that every house is always occupied, as is now the case, but such of the houses as are occupied are in a similar condition.

To a person who has been familiar with the state of Bradford during the last 10 years, and who has been acquainted with the difficulties and loss which have been suffered by owners and others connected with small houses, it cannot be a matter of surprise that the builders of houses of this class should be somewhat backward in meeting the present demand.

The difficulty is now, however, all but passed. The houses which have been erected under the new byelaws are in every respect superior to those previously built. Arrangements are being made by many different parties for the erection of large numbers of small houses. The building byelaws are evidently on the eve of proving their own value, and it will shortly be placed beyond dispute that the effect of their operation has been most beneficial throughout the town."

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Housing of the  
Poor in Towns,  
by Dr. Hunter.*

BRADFORD.

## BRISTOL.

In the city of Bristol the corporation as a local board of health has appointed Mr. Heaven as clerk, Mr David Davies as medical inspector, and Mr. Yeates as inspector of nuisances and of common lodgings. This last officer has three assistants. The board has also qualified a number of police constables as inspectors of common lodgings, but the appointment seems to be only used for police purposes, their reports to the board being very few. The inspector has no other engagements, and

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seems to be a valuable officer. The population with which these officers have to deal are placed socially as well as geographically half way between Plymouth and Birmingham in respect of the quality of the house accommodation. About 30 cellars are occupied as dwellings; about half the labouring population live in a room or rooms of a large house, the other half having small houses or cottages to themselves. Of these small houses there are thousands at about 3s. a week. In one respect the regulations of the local board tend rather to perpetuate the residence of working people in large houses, as the new rows of small houses, while improved by obedience to the board's regulations, are also rendered much dearer.\*

The local acts gave no special power over internal filth or crowding. The inspector related the usual difficulties in dealing with these matters. Irish families, it was alleged, constantly received strangers, and there was no gainsaying their statement that they were all of one family. He complained of the slowness of all processes before the magistrates, and had not often been before them. In February 1865 an instance of crowding of persons not of one family in Jarman's Court was dealt with as a grievance to the neighbours, and a fine of 10s., with an order for abatement, was the result.

In May 1865 a house was shut up as unfit for habitation, by magistrate's order, with costs.

In July 1865 a house was shut up by magistrate's order because dilapidated.

In December 1864 an order was given to shut up a house, but the tenants of the rooms would not move, and are there yet in contempt of the order.

Once the action of the board was efficient, without recourse to the magistrates. On 1st April 1865 the owner of a house at Orchard Place, Bedminster, was required "to prevent overcrowding, and to cleanse premises." The case was of one room containing three adults with eight children, all of one family, and in the same house was another large family. The nuisance presentment book was regularly kept, and full of drain and privy complaints. Mr. Davies had during a recent epidemic of fever obtained, on his own authority, the closing and cleaning of a number of places which much required the process. I extracted from his journal instances descriptive of the state he found the people in, "without a morsel of furniture," "and without a rag to cover them," they lay "on the floor" or "on shavings." After a while the medical inspector, apparently compelled to tolerate clean shavings, begins to report cases where "the shavings are very inferior and dirty." Mr. Davies had seen as many as eleven persons inhabiting a single room, and related the usual horrible facts which any one may predicate from such a condition. During the recent fever, the officers had abated some of this abomination by their energetic remonstrance, but they felt they were on precarious ground. They did not know whether a number of vacant rooms in a house protected it from prosecution when one or two of the rooms were plainly too full. They said that the magistrates were legally advised that a person sick with fever was no nuisance in himself, and that if a house was not crowded with a number of healthy people it was not crowded with the same number if unhealthy. They felt the injurious effects of delay, in the second hearing before the magistrates, before a penalty could be inflicted, and they thought the warning by the board might reasonably

\* The medical inspector complained nevertheless that the local government did not exact sufficient ventilation in new houses built in close situations.



be accepted instead of the first hearing. They said the power of removal of accumulations by the inspector was inoperative, because the dirt might in one case be of great value, and in another not suffice to pay for the hauling.

In a letter of Dr. Fox, relating recent evils "in Broad Court, St. Ann's Street, and many other places, where each room holds a family, and "sometimes half the one room is sublet to another family," he proposes the law of inspection of common lodgings to be extended to lettings of single rooms. "I have known of cases where a second "room has been paid for with the view of inducing a family to divide "at night," but they have refused to do so. Dr. Fox would vest the local authority in the medical officer.

Such localities were visited as the officers recommended as specimens of crowding. Sharland's Court in Bread Street consists of small houses, 20 feet 10 by 12 feet in ground plan, with two bedrooms. They had no back opening. The rent 2s. 1d. In one I found five adults with five children; in another one adult with seven. The ten other families were smaller, and in no case did there seem to be a lodger. The total result was 12 houses, 24 bedrooms, 26 adults, and 37 children. In Saunders's Court there was no back opening; the houses had two bedrooms, were three storeys high, and were let at 2s. 6d. The ground plan inside was 12 feet by 12. I measured a room in Butter Alley (12 feet 6 by 10 feet 10 by 7 feet), where Mr. Davies told me seven persons had all had fever together. An empty garret above was not used, because the nursing was said to require to have all the patients nearer under hand. In Gloster Court, Redcross Street, were 23 occupied houses. Their ground plan was about 9 feet 6 by 9 feet 6, and the bedrooms were above 7 feet high. There was a privy closet to each, but no yard or back opening. This was a cheap neighbourhood, and the rents varied from 1s. 9d. down to 8d. a house. All had more than one bedroom. In one with two bedrooms were four adults with five children. The total result was 23 houses, 50 bedrooms, 52 adults, 64 children.

Wellington Court is let at 2s. There are eleven houses of one bedroom, each measuring 10 feet by 9 feet 6 by 7 feet. There were here but 23 adults, with eight children. In one case four adults and a child were all females. In another the family consisted of a father, two adult daughters, and one idiot child.

In German Court, Horsefair, seven of the eight tenants have but one room each family, and there are couples with three and four children. Each family pays 1s. a week. Another house is 1s. 1d., and in the Cottage, which measures, within, 7 feet by 7 by 7 (the whole house of one room), two men lived, who had fever at the same time. All around were families, small indeed but whole and increasing, who had but one room.

Going then to Lewin's Mead, some large buildings let in rooms were visited. Some paid 1s. 3d. for two rooms; others 1s. for one. The number of rooms bore no relation to the number of family, the two largest (three adults with three children and two adults with five) having but one room. The state of dilapidation was melancholy as to the poor people, and contemptible as regarded the owners. Water came in everywhere,—through roof and walls; the floors were aflood. In a house where a person named Callaghan was stated to collect the rent on behalf of a person named Cogan, the back room of the third storey had lost five and a half of the six panes of glass which formed the original window; half a pane (11 inches by eight) alone remained. The window gaped a great hole three feet by three feet, two feet three from the ground, in a room in which a family passed their whole indoor life, and this had been the condition of things for three

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visitations.

Neglect.

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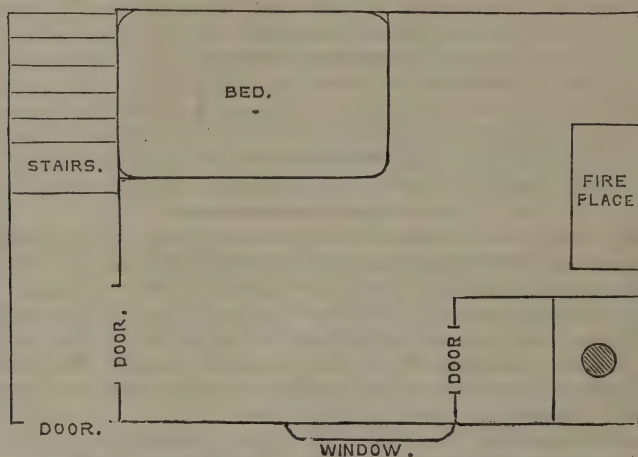
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winters. "I puts my shawl up in the winter, because I've a delicate boy," said the mistress of the room. Great zeal had been recently shown in the erection of high walls to divide the yard formerly common to several houses into small areas for each; but the walls were so high, and so near to the doors and windows, as to reduce the area to a mere well, and were not improvements. The necessity for restraining the commixture of dejections during the fever had led to the creation of very numerous waterclosets. These, if delicate, are soon deranged by poor people, and if of a plain sort often stink. Commendation must therefore be withheld from the plan of a recent erection of a privy in a back kitchen in which was a bed. The whole apartment was but 11 feet by 10; in opposite corners were the bed and the newly erected closet, the door of which opened into this kitchen, and the airing of which was supposed to be provided for by the removal of a brick from the outer wall.

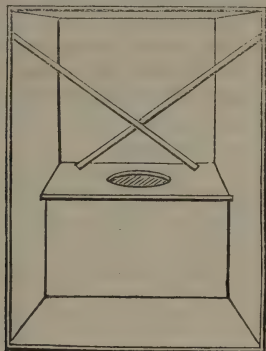


In New Street I visited a private house of four storeys of two rooms. Six of the rooms held a separate family in each, two of which consisted of five members each. The ground floor people were four. The whole house held 24 persons, and there were small cottages in the yard behind. As a general rule the most air was got at the top of the houses. Nothing had been done under the Labourers Dwellings Act.

Common  
Lodgings.

A few model lodgings and a fever house had been lately opened. The care of the common lodgings is committed to Mr. Yeates, the inspector. The definition in use is *the presence of two strangers in one room on a nightly tenancy*. The inspector has not cubed the rooms, and no minimum of space is allotted by authority. I visited the house of a person named Long, who plainly kept a lodging, but had escaped registration. Here the woman owned to 11 persons using two rooms only. The inspector showed me the registered lodgings; he kept a list-book, but no weekly statement of numbers was made. The usual character of these houses was pretty good and roomy; though several had no yards. The name was often over the door, but the room cards were not always there. The inspector said that a conviction for an unregistered house had been obtained against a beer-house keeper, although he pleaded privilege of his beer licence. He said scores of cases of infringement of the Common Lodgings Act had been prosecuted. St. Jude's Lodgings, the establishment of Mr. Teagle,

deserves particular notice. Here are partitions for seclusion, and though mean, the accommodations are reasonably decent, and certainly cheap. Mr. T. receives 96, mostly in single beds at  $2\frac{1}{2}d.$ , but some in double at  $4d.$  the bed. He receives no single women. For this sum he provides a bit of candle, and a bit of tobacco, which may be smoked in bed, as a compensation for the early hours which are insisted upon. In order to prevent the seat of the closet from being defiled by the users' standing upon it, he has placed a saltire or figure  $\times$  of wood thus, after a French fashion, which may be useful here.



Here, as in other towns where the sub-letting houses by the room prevails, the officers concerned wished for the introduction of some restraint upon the lodgers' numbers. The fixing a cubic minimum of space per head, the obligation to let less than two rooms to one family only on licence, are courses which may be thought of, but no law can avail against internal evils, unless inspection follow. The lodgers are themselves the only immediate sufferers, and they will not complain.

Some written suggestions were received from the Bristol officers to which attention was due. Mr. Davies thought a number of restrictions on overcrowding, and the use of unfit dwellings, such as are contained in the Common Lodgings Act, might be enforced in all instances of single-room lettings. He also desired power to remove persons sick of typhus from all small houses, if judged necessary by the officer of health.

### CARDIFF.

Cardiff has adopted the Local Government Act, and its administration has for a great number of years had the advantage of being aided by a medical officer, Dr. Payne, who has the confidence both of the poor people and of the bench of magistrates, so much that the first seldom require anything more than his advice to move them to whatever is necessary, and the latter are disposed to accept his opinion as conclusive on all health matters which come before them.

The machinery by which the law is carried out is that Sergeant Hibbs, on the force of police, is appointed by the board inspector of nuisances and common lodgings, and has the co-operation of the night sergeants in dealing with overcrowding. He reports *pro formâ* to his superintendent; but his interference in the matters in question only matures into action after reference to the medical officer. Hibbs is a prudent officer, and Dr. Payne and he are aware that their nightly inspections can only be performed by prudent good humour, and not

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enforced against opposition. Dr. Payne has selected about 300 houses, chiefly in six or seven streets, which he considers as the Irish or crowded quarters. The rooms of all these houses are measured, and placed on a register; the inspector visits a number two or three times a week, and pencils down in a note-book the number of inhabitants. Of these visits, which are nightly, several thousands are made in a year. The note-book is compared with the register, on the principle that a bedroom requires 300 feet space per head, and a night-and-day room requires 500. Where great excess is detected repeatedly, and always after several admonitions, proceedings are taken, when the medical officer certifies to the overcrowding and to the number for which the house is fit, and a conviction follows evidence of the facts as a matter of course, without the attendance of the medical officer. All this is done under the general acts, the local act giving no power. All these houses were for a while intended to be brought under the Common Lodgings Act, but this was abandoned.

Dr. Payne's Report for 1858 gives a list of 222 "houses with lodgers," containing 2,920 people, and complains of the crowding therein to be seen. The greatest number then found in a house of 5,500 cubic feet was 26; the highest average for one whole street was 21, the lowest 9; and in 1861 the Census returned 4,606 inhabited houses for 32,954 persons in the whole town.

This is an ordinary leaf out of the inspector's note-book :

"Tuesday, Aug. 29, 1865." Street named, and number on register.

"Tindall, Roger ;	adults 7	children 4
Shrimpson, G.	" 5	" —
White, Jas.	" 6	" 4
Woolf, Wm.	" 4	" 3
Brien, Dennis	" 10	" 3
Driscoll, Timothy	" 10	" 4
Dashey, Mary	" 10	" 5
Sullivan, Tim.	" 8	" 6
Kollarn, Dennis	" 11	" 9"

The rooms are generally small; many houses have, however, three bedrooms and two kitchens.

In bad instances more details are given as—

"John Cotter.

1st room	-	2 adults, 4 children.
2d room	-	2 " 4 "
3d room	-	1 " 3 "
4th room	-	2 " 1 child.
5th room	-	2 " 1 child."

Total in house, 5 rooms, 9 adults, 13 children.

Or Dennis Hurter, 5 rooms, in each of which lived and slept a pair, with 11 children among them; or Jeremiah Conley, 5 rooms, each containing a pair, and with 12 children among them.

Where these rooms were small and the families large, the authorities held the occupier responsible for the crowding, even if all the persons in each room were of one family. The occupier was generally the resident on the ground floor. A notice was sent, and proceedings taken as in these cases, which occurred in August 1865 :—

J. B., 7, Herbert Street, found on a night visit to have as inmates in her six rooms, 15 adults and 14 children; was fined 2*l.* and costs, or one month's hard labour.

E. C., 9, Ellen Street, found on a night visit to have as inmates in her seven rooms 10 adults and 12 children, was ordered to reduce the

number to 11, remove the beds from the ground-floor altogether, and to clean ; and was fined 1*l*.

D. D., 16, Ellen Street, found on a night visit to have as inmates 8 adults and 8 children, was ordered to reduce the number to 10, the premises being described as "certified for 10," although not a common lodging-house. He was fined.

D. M., 23, Ellen Street, was fined 1*l*. for having 17 persons in a house "certified for 11."

M. N., 13, Ellen Street, was fined 1*l*. for having, in addition to his family of 2 adults with 7 children, 6 lodgers with 4 children. His house contained 6 rooms and a back kitchen. The dimensions of 3 were supplied : 12 × 12 × 9, 12 × 10 × 9, 11 × 7 × 8, 10 × 8, 11 × 7. He was ordered to reduce his number to 11. It is plain from these convictions that the magistrates are not desirous of checking improvement by technical objection. They caution several times before they will punish severely, but in no case have they refused a conviction. The board no longer interferes in such cases, but leaves them to the officer. In addition to the use of cellar bedrooms, and of bedrooms over privies, (which the officer has succeeded in putting an end to,) there has been lately an attempt to condemn as unsuitable all bedrooms on the ground-floor, and this has succeeded in a great many instances. When the numbers living in a house are ordered to be reduced, the best way of doing so is to give up the use of the kitchen as a bedroom. When this is done the bedrooms are kept empty by day, and may without injury receive a greater number than before at night. Rents are very high, however, and are inclined to rise, and nothing having been done by the public to build houses for the poorer people, there is crowding in spite of every endeavour to abate it. The houses are generally leasehold, and no great confidence having been felt in the permanence of the wonderful prosperity of the place, they are small and very poorly built. The population has fluctuated even in the last decennium, and when any new great work is undertaken Irish and other new comers arrive by thousands.

I visited houses in different parts. A back-to-back house of small kitchen and bedroom over it was let in Stanley Street at 2*s*. 9*d*. In Thomas Street the houses were about 5*s*., and a single front room 1*s*. 9*d*. A house of 5 or 6 rooms would fetch 5*s*. or 6*s*. a week, and would often have a bed in each room, the kitchen being held by the occupier, who got what he could for the rooms above. Cooney, in Herbert Street, paid 12*s*. a week rent, and retained the parlour and back bedroom for his own family of three. The rooms were let unfurnished ; the back kitchen for 1*s*. 9*d*. to a pair with one child ; the front kitchen for 2*s*. 6*d*. to a pair with one ; a half-space room for 2*s*. to another pair with one. The front bedroom was let to a pair at 2*s*. 6*d*., and in the garret were three beds let to chance comers at 4*d*. a night. In North William Street all the houses were under notice to clean. Although, like the rest of Cardiff, the houses were full of single-room lettings, they were kept decently clean inside by the vigilance of the inspection. A poor four-roomed house, with an out-kitchen, brought 6*s*. 6*d*. In Whitmore Lane a house, let for 9*s*. a week, consisted of 2 kitchens and 3 bedrooms, with a little inhabited outhouse. Here in 6 beds slept 10 persons. Another, at 2*s*. 6*d*., consisted of a kitchen 9 feet by 10, with one bedroom over it. Another at 3*s*. was a kitchen, back kitchen, and bedroom, and held 6 people. Whole streets have beds in every kitchen, and rooms were let at 1*s*. to 2*s*. 6*d*. a week each, and yet whatever can be done by energetic administration is here done to perfection. One result of this action is

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that the suburbs of Roath and Canton, which are beyond the jurisdiction of the officer, have become more crowded than Cardiff. An increased supply is here demanded more than almost anywhere, and might be afforded by the public authorities, with security against loss, so long as they kept up their opposition to crowding. Private owners may hesitate to invest in a great lodging-house, being at the disadvantage of not being able, like the corporation, to borrow money at 3*l.* 10*s.* for the purpose, and also not being secure of the continued vigilance of the administration against overcrowding, without which the speculation might fail, through the natural submission of some classes of the people to live in the squalor and dissipation in which they were brought up.

The sailors boarding houses are under inspection, though not registered as common lodgings. Sailors here pay 14*s.* a week, and seem comfortably though rather too closely lodged.

Common  
lodgings.

The definition of a common lodging in use here is where the whole house is *let in lodgings, but with a common kitchen*. There are 28 such houses registered, but they are all small, perhaps receiving an average of 8 lodgers. I visited some threepenny houses which were very well kept, doing credit to the inspector. As may be supposed from the peculiar system here so successfully carried out, there was no need to be very exact in getting all such houses under licence, for if not licensed they were under inspection as small houses, and the end was gained. The amount of space prescribed is 250 feet. It was worthy of remark that the good effect (observed everywhere) of paving the courts was well known here. The houses, previously always filthy, became, when the yards were smooth and cleanable, clean and decent inside as well as out. Almost every privy has now given place to a watercloset, often, however, only flushed by a bucket of water being thrown in by the occupier.

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## CHICHESTER.

CHICHESTER.

Chichester is managed in matters of health by the Town Council, who have a local act, but who under it do not possess any special powers of dealing with unhealthfulness of dwellings. A lodging house committee and a nuisance removal committee are formed out of the council, but they seldom meet. Mr. Harris the relieving officer has been appointed inspector of nuisances; he receives 20*l.* a year and is re-appointed annually. He is supposed to report to the mayor, but no regular presentment book was known in the town clerk's office. Formerly there were occasional cases before the magistrates. The city had taken no action under the Labourers' Dwellings or Labouring Classes' Lodgings Acts. I visited Chichester because I had heard that the city was notorious for tramps. I found the character was altered for the better, a result of the police having undertaken the relief of vagrants, and that it was only in race weeks that the evil crowding existed in its old intensity. Mr. Everett the superintendent of police receives 10*l.* a year for his care of the common lodgings. There are seven of these houses. They were measured when the Act first came into force, and the system of inspection was good. The definition in use was *a house which received notorious tramps*. Drink was sold at most of them. I visited all. Mrs. Shepton's was very good; her rent was 6*s.* 6*d.* a week; and she maintained 14 beds at 3*d.* a night each. Shippam's had six beds, and was decent, except that the house was beside a ditch called the Lavant, which exhaled a penetrating putrid scent. Hurn's had 21 beds, and had a cesspool. Randall's 10½ beds, and a privy on the brook. The owners of these houses send a weekly return of their lodgers to the



police. All were dependent on wells for water. Several were poor old places and the floors were occasionally too old to be easily cleaned. Except the absence of back openings and the narrowness of a few of the courts there did not seem to be any incurable defects in the poorer houses. Chichester is one of the oldest seats of population in the country, and the ground on which it stands must almost necessarily be everywhere a heap of rubbish in which cesspools have stood for many centuries. Under these circumstances a supply of water from a distance and liberation from dependence on the old contaminated wells seems a condition necessary to the continued life and strength of the place.

### COLCHESTER AND CHELMSFORD.

At Colchester the Local Government Act is not adopted, and the local authority remains vested in a body of commissioners to whom Mr. Gooddy is the clerk, and who, although until lately rather supine, have now begun to stir, and have appointed a new officer as inspector, under whom much improvement is expected. The best streets in the town are handsome, but behind them are groups of old rotten and damp cottages barely fit for inhabitation. Among them are to be found several instances of closets in the back kitchens, which have drains leading either to the common sewer or to an adjacent cesspool. In one instance at least,—in Dead Lane,—the receptacle stood underneath the bed-room. Uncomfortable as some of these houses are, they are far from cheap. A long row visited had no gardens, no water supply, and only one bedroom, yet the rent was 2s. a week. Some four-roomed cottages at 2s. 8d. were cheaper, but here also potable water had to be bought by the bucket, the supply from all the neighbouring wells being thoroughly poisoned by the soakage of cesspools and pig-styes of 2,000 years standing.

When in the autumn of 1865 the local authorities revived to a sense of their responsibilities, there was found to be no register of common lodgings, and only three were known to exist. A register and the necessary forms have been ordered. The poor-law authorities have a vagrant ward in the town, and the public houses usually receive poor travellers, so that there is not probably a great necessity for common lodgings; still, in the neighbourhood of a great camp, it is desirable that the usual regulations to preserve order should be made by the gentlemen intrusted with the administration of the law. Two of the lodging-houses which were visited in October 1865 were in very good condition, Lewis's particularly so. Overcrowding was not suspected by the police.

In the other Essex capital, Chelmsford, are some cottages as damp, miserable, and decrepit as in any country village. One unilocal, for instance, which measured only 10 feet 6 in. by 6 feet 6 in., and was 7 feet high, stood in an alley 3 feet wide. Several were built in great part of wood, and were worn out, the foundations sinking, the windows gone, and the floors sloping. On the other hand, there was hardly a cesspool to be found, and the inspector reported the waterclosets to answer well in the hands even of the poorest people.

The authorities had induced the closing and even the destruction of some bad cottages. No overcrowding was suspected, although there were some single-room sub-lettings. Most of the public houses received poor travellers, and there were in consequence only two registered lodging houses. These accommodated about 30 lodgers, and were in a good condition.

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by Dr. Hunter.*

COVENTRY.

The corporation of Coventry as a board of health has appointed Mr. Webster inspector both of nuisances and common lodgings. He does not visit by night, but has the assistance of frequent visits by the night sergeants of police. He attends to the lodgings, and their general condition was remarkably good and tidy, and this without a single exception. He prosecuted occasionally, and with success; but the magistrates seem to have dealt very leniently with offenders. It is plain that offences against the Common Lodgings Act may in most places go on a long time before they are found out, and if nominal penalties only are inflicted it must prove more profitable to the offending owner to pay a trifling occasional fine than to obey the law. The following convictions which make the whole list are quoted in explanation; 1862, April, for opening a lodging house, condemned in costs; 1862, June, the same; 1863, February, for mixing the sexes, condemned in costs (5s.); 1864, August, the same; 1864, May, for mixing the sexes, fined 2s. 6d. and costs; 1864, September, for not registering, costs. These convictions were chiefly obtained by persons informing, not by night visits, although the inspector claims a right to visit all suspected houses by night. The number of registered houses is now only 13. The number of persons whom each room can accommodate at the rate of 250 cubic feet per head is legibly painted in black and white on the door. No objection was made to beds being made on the floor, nor to persons lying in bed by day; but this was the fault of the byelaws, not of the inspector. The whole were visited, and were found to hold about 200 persons. No new houses have been registered since 1853.\*

There appeared to be no reason to think that any unlawful overcrowding could be found in Coventry. There were 9000 houses to the comparatively small population of 40,000, and about 1,000 were to be let. Small houses of a kitchen and bedroom were numerous, and were let at about 1s. 9d.; very few cottage houses were being built, the demand being slack. People who had lived in the large old houses of the centre of the town had whenever their means allowed got out into newer parts, and many single rooms were either empty and almost abandoned, or offered to be let at 1s. a week. There were no cellar bedrooms, nor bedrooms over privies. Of this latter class of nuisance the whole number, about 50, have been either removed or the privy converted into a water-closet by the board, who in these cases will provide a water-closet at its own cost in the first instance. No process before the magistrates has been necessary for these purposes. In the large houses of single room tenements the approaches, passages, and staircases were often filthy, and the board would do well to provide lime and brushes so as to encourage if not enforce cleaning. In one of these single rooms, let at 1s. 4d. a week, lived a family of a pair with 5 children; the rest of those visited were not full, and in most large houses half the rooms were empty.

The town clerk and surveyor had never expected the byelaw directed against unfit dwellings to carry a conviction against old property. They wished to have such a byelaw legalized, the town clerk arguing,

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\* The seventh byelaw is peculiar. "The keeper of every common lodging house who shall permit or suffer persons of opposite sexes, except children under the age of 8 years, to sleep in the same room, unless such persons be man and wife, or such keeper shall, in the opinion of the adjudicating justices, have had reasonable cause for believing them to be not man and wife, shall for every such offence forfeit." &c. It is difficult to understand the working of such a byelaw. If the word "not" be an error, still no byelaw can prevent a number of married couples from sleeping in one room.

with reason, that the 13th section of the Nuisances Removal Act was almost inoperative, because the unfitness of the house must be proved by the existence of a nuisance described by witnesses; the magistrates never going to view to form a judgment, while under the byelaw the board itself goes to view, and the magistrates have only to enforce the board's decision, which is made from the best evidence, their own senses.

The following resolution of the local board, and the blank letter annexed, are copied from the forms in use. The process is unusual, and not entirely satisfactory; the law itself not allowing always of sufficiently prompt action, no additional and indiscriminate delay should be imposed by the board.

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No. 2.

On the

*Housing of the  
Poor in Towns,  
by Dr. Hunter.*

COVENTRY.

Unusual delay.

## " COVENTRY LOCAL BOARD OF HEALTH.

At a Meeting of the Local Board of Health of the City of Coventry, held at St. Mary's Hall on Tuesday the 10th of April 1860, the following Order was made, viz. :

That before the city surveyor reports to this board any properties on which sanitary works have to be executed, private notice be given by the surveyor to the owners of the properties, calling their attention to the nuisances existing, and requiring them to abate the same, and that only in default of compliance within fourteen days the surveyor do report the same to the board."

Coventry,

186 .

Sir,

In compliance with the above order, I beg leave to call your attention to

and to request that you will be pleased to take the necessary steps in the matter forthwith.

I am, Sir,

Your obedient servant,

City Surveyor.

## DERBY.

At Derby the corporation as a local board has appointed Mr. Jones as clerk, Mr. Thomson as surveyor, and Mr. Bailey inspector of nuisances. The byelaws are of the usual character, except that cess-pools are permitted to be made where new houses are built. There are no local acts of importance. Among the byelaws is the one which professes to close unfit houses, and under it forms with the corporate seal are in use, and people are occasionally induced by fear or persuasion to close houses which could not be dealt with under the 13th section of the Nuisances Removal Act. No judgment on the matter has, however, been given by the local magistrates. Derby is not without the class of houses which require such a byelaw. In Willow Row, for instance, in a group called Turpin's, were houses of a kitchen and bedroom, each measuring 8 feet by 8, and about 6 feet 6 high, the bedroom

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without a fire-place. In one such lately lived a pair with four children. Two such houses ought to be thrown into one; as it is they are let to small families, one, for instance, let furnished at 1s. 8d. a week. Among them were some houses uninhabitable on account of dilapidation. In larger houses in this immediate neighbourhood were a few single-room tenements, and beds were to be seen on the ground floors; but it was confidently stated that such arrangements were rare, and confined to this part of Derby. There were no cellar bedrooms. Instances of crowding and internal filth had been rarely meddled with, the officers feeling the want of a medical officer in these matters. The inspector related that he once turned out of a dozen cottages in one yard 163 persons, who were sitting round the fires at 3 in the morning; but there was not much of such crowding, and indeed little reason for it. There were hundreds of 4-roomed houses with gardens let at 3s. Many more, without gardens, were let at 2s. 6d., while single rooms brought from 1s. to 1s. 3d. The surveyor is replacing cesspools by waterclosets with tumbler cisterns, wherever there is necessity. The cesspools are exposed to an unusual mischief here. Some of them stand open like ash-middens between two privy closets; but as a scavenger's cart goes by to collect ashes which are exposed in baskets, none are thrown into the middens, and the cesspools therefore stand full of fermenting liquid, deserving the name. This might be easily remedied. Wilmot Street, one of the best in the town, was visited. Here, at No. 47, in a house let at 17l., and having all the appearance of comfort and respectability, the back bedroom, in which a person slept, was directly over the privy receptacle and ash-midden, which establishments occupied the place of a ground floor room of the house. Other houses near had waterclosets, but some had privies built against the wall of the back kitchen, beneath the bedroom windows.

The common lodgings were inspected by the inspector of nuisances. As is usually the case where these houses are not placed under the police, there was little certainty as to whether all were brought under registry. The inspector was a good officer, and the houses showed proofs of his attention; all were large houses; and although some were untidy on a forenoon visit, all which were visited were clean. One had a bed too many, and two had the windows closed; but the general character was above the average.

The form in use for closing houses is appended. It must be stated that the clerk has no hope of maintaining the legality of the process. Mr. Jones has lately issued a paper on certain defects in the sanitary laws, which is sent in. Derby presents a strong instance of the difficulty and yet desirableness to which Mr. Jones alludes, of extending the power of a local board over new suburbs as they grow up beyond the boundary of the borough.

## BOROUGH OF DERBY.

*Order as to Buildings unfit for Human Habitations.*

Whereas notice has been given by the local board of health to the owner or agent of certain premises situated in Court, 2, St. Helen's Street, in the borough of Derby, now or late in the respective occupations of Hitchcock, Levers, Farnsworth, Morrell, that such buildings are unfit for human habitation, as appears by the certificate of the sanitary inspector of the said local board: And whereas the owner or agent of such premises has not, pursuant to the said notice, rendered the same fit for human habitation, as required by bye law 31, with respect to streets and buildings: We therefore, acting as the local board of health in and for the said borough, do hereby declare such premises as aforesaid unfit for human habitation, and that from and after the 10th day of May 1865 the same shall not be inhabited; and any person who

after the date or time mentioned in this our order lets or occupies, or continues to let or occupy, or knowingly suffers to be occupied, such buildings or any part thereof, shall be liable for every offence to a penalty not exceeding twenty shillings for every day during which the same are so let or occupied, unless in the meantime such houses or buildings shall be rendered fit for human habitation, by limewashing, cleansing, and repair, to the satisfaction of the said local board of health, when in such case this our order shall be revoked.

Given under the common seal of the council acting as the local board of health, this 3d day of May 1865.

### DUDLEY.

At Dudley, Mr. Brooke the clerk, the surveyor, and the inspector of nuisances agreed in opinion that there were no houses of such incurably bad construction as to require a power of closing or of destroying old property in that town to be conferred on the local authorities. There were no cellar bedrooms, no privies under bedrooms, and no bedrooms originally built for stables. The officers therefore, while they would gladly see such a power given, have no case within their Dudley experience; and indeed, though very near Wolverhampton, where the expediency of such a power has been much discussed, had not made up their minds on the most important part of the matter,—the question of compensation. Mr. Smitheman, the town constable, is inspector of common lodgings. He has 19 licensed houses, all at threepence, and intended for tramps, of whom they accommodate nearly 200. There are 38 known brothels in the town, and these were at first brought under the Common Lodgings Act, but the board has latterly forbidden this practice. There have been no prosecutions under either the Common Lodgings Act or the 29th section of the Nuisances Removal Act for four years. The inspector allows nominally about 250 feet to each lodger, but he does not seem to be very exact about the space, the number of persons in some houses being very large. There were many beggars in bed when some of the houses were visited at 10 a.m., and the whole arrangements, though neither very dirty nor untidy, were without order. The inspector trusted to his intimate acquaintance with the town to obtain the requisite information respecting unlicensed houses, a task rather difficult here, as even the police find it difficult to enter the houses of the sturdy inhabitants.

In some of the poorest lanes in the town the ownership, having become disputed and uncertain, has practically lapsed, and the tenants in possession have paid no rent for a long time. The two worst quarters were said to be the Mambles and Brandy Row. The main alley of the Mambles is set out with poor but sufficient houses which did not seem to be crowded or very filthy inside, but there were adjacent parts which were so very bad indeed as almost to justify compulsory destruction. One house, for instance, had no back opening, and stood in an alley only five feet six wide, with a wall opposite to it 16 feet high. Brandy Row had a main alley of nine feet width, and houses without back openings. Rents seemed high for so confined a place; 2s. 9d., for instance, was paid for a cottage with two bedrooms. But this part is inhabited by a people rather dissipated than poor, and is central and convenient.

The byelaws of Dudley provide for the duties of an officer of health, should one be appointed. The duties are described at considerable length, and as this is rarely done a copy is sent in; among other duties he is to give instruction for the diminution of overcrowding among occupants of single room tenements, if of more than one family.

### APPENDIX.

No. 2.

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Housing of the  
Poor in Towns,  
by Dr. Hunter.*

### DUDLEY.

Inspection of  
town.

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DUDLEY.

The appended table is received from the police authorities. The visits were made by night, and the table is doubtless authentic in its figures; but the remarks in the last column must be understood to be merely the opinions of the visiting constables. It will be remembered that wherever the number of adults of each sex in a room is not equal, there is an illegal mixing of the sexes, except where all the adults are of one sex.

## Inspection of Lodging Houses at Dudley, 18th October 1865.

Names and Residences.	No. of Rooms.	Adult Males.	Adult Females.	Children.	Total.	No. of Beds.	Remarks.
Joseph Parkes, Queen's Cross	1 2 3	4 6 1	2 — 1	— — 2	6 6 4	3 3 2	} Too confined.
Richard Griffiths, Snow Hill	1 2 3 4 5	2 3 3 1 1	4 1 — 1 2	— 1 — 1 —	6 5 3 3 3	3 2 3 1 2	
Isaac Wittick, Snow Hill	1 2 3	1 2 6	2 2 —	— — —	3 4 6	2 2 3	} Good.
John Purcell, Snow Hill	1 2 3	2 1 2	2 1 1	— — —	4 2 4	2 1 2	
Jonathan Cooper, Wolverhampton Street	1 2 3 4	3 3 2 3	— — — 4	— — — —	3 3 2 7	2 2 2 4	} Filthy.
Charles Price, King Street	1 2 3 4 5 6	2 4 8 4 1 —	4 2 — 1 1 1	— — — — 1 2	6 6 3 5 3 3	3 3 4 3 1 1	} Very much confined, but tolerably clean.
Thomas Lester, Birmingham Street	1 2 3	7 2 2	— 2 2	— — —	7 4 4	4 2 2	} Clean, but rather too confined.
William Smith, Birmingham Street	1 2	6 4	— —	— —	6 4	3 2	} Good.
Thomas Cooper, Birmingham Street	1 2	2 1	— —	— —	2 1	1 1	} Good.
George Davies, Birmingham Street	1 2 3	4 — 1	— 1 —	— — —	4 1 1	2 1 1	} Clean, but too confined when full.
Elizabeth M'Intosh, Birmingham Street	1 2 3 4	1 3 — 1	2 — 2 2	2 — — —	5 3 2 3	2 2 1 2	} Too confined and dirty; small-pox in the house.
Thomas Maloney, Birmingham Street	1 2 3 4	2 3 1 10	5 — 1 —	— — — —	7 3 2 10	4 2 1 5	} Very much confined, and very dirty.
Thomas O'Donoghue, Birmingham Street	1 2	5 2	1 —	— —	6 2	3 1	} Too confined.
Isaac Langley, Birmingham Street	1 2 3	3 1 4	— 1 —	— — —	3 2 4	2 1 2	} Tolerably good.
Ann Prior, Birmingham Street	1	4	—	—	4	2	Tolerably good.



Inspection of Lodging Houses, 18th October 1865—*continued.*

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DUDLEY.

Names and Residences.	No. of Rooms.	Adult Males.	Adult Females.	Children.	Total.	No. of Beds.	Remarks.
Joseph King, Birmingham Street	1 2 3	2 1 2	— 2 —	— — —	2 3 2	2 2 1	} Too confined when full.
Cornelius Rogers, Birmingham Street	1 2 3 4	2 4 3 1	— — — 1	— — — 1	2 4 3 3	1 2 2 2	
William Shaw, Birmingham Street	1 2	2 4	— —	— —	2 2	2 2	
HOUSES NOT REGISTERED.							
Joseph Parkes, Queen's Cross	1 2	5 1	1 1	— —	6 2	3 1	} Tolerably good.
Ann Gallagher, Stone Street	1 2 3	4 2 2	— — —	— — —	4 2 2	2 1 1	
Elizabeth Noakes, Snow Hill	1 2	1 4	1 1	— —	2 5	2 4	} Too confined.
Mrs. Bishop, New Hall Street	1 2	6 —	— —	— —	6 —	2 1	

## Inspection of Lodging Houses, 20th October 1865.

William Shaw, Birmingham Street	{	1 2	2 4	2 —	— —	4 4	3 2	} House dirty.
Charles Price, King Street	{	1 2 3 4	2 4 2 2	3 2 — 2	— 1 — —	5 7 2 4	4 3 5 3	} House tolerably clean.
Jonathan Cooper, Wolverhampton Street	{	1 2 3 4 5	1 2 2 2 2	— — — — 4	— — — — 3	1 2 2 2 9	1 3 2 3 5	} House very dirty.
Richard Griffiths, Snow Hill	{	1 2 3 4 5	4 3 3 1 —	— 3 2 1 1	— — 2 1 2	4 6 7 3 —	2 3 3 1 2	} House dirty.
Thomas Maloney, Birmingham Street	{	1 2 3 4	3 — 1 4	4 1 1 —	3 2 1 2	10 3 3 6	4 2 2 5	} House very filthy.
Joseph King, Birmingham Street	{	1 2 3	— 1 2	1 — —	2 2 1	3 3 3	2 2 2	} House tolerably clean.
Thomas O'Donoghue, Birmingham Street	{	1 2	3 2	— —	— —	3 2	2 3	} House tolerably clean.
Joseph Parkes, Queen's Cross	{	1 2	2 5	2 —	— —	4 5	3 3	} House clean.
HOUSE NOT REGISTERED.								
Joseph Parkes, Queen's Cross	{	1 2	2 1	— 1	— 1	2 3	3 2	} House clean.

## APPENDIX.

## EXETER.

No. 2.  
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EXETER.

At Exeter the town council is the local authority. There is a body of commissioners under a local act of 1831, and the inspector of nuisances, Mr. Dobell, is an officer of both bodies. He is said to have the confidence of his employers. He keeps no regular book of presentments. His proceedings before the magistrates have always been successful. The whole city is drained, and nearly every closet is trapped. The Local Government Act has not been adopted, and no action has been taken under the Labourers' Dwellings Act. There are now no cellar-bedrooms, but many large houses are let in rooms, when a whole family will often have one room only. There are but few small houses in the town; some new rows have been built in the outskirts, at rents of 8*l.* or 9*l.* In the large old houses of the middle of the town, many rooms contain four or five people, but in no case that I heard of were these of more than one family. The local act does nothing to strengthen the powers of the local authorities against nuisances, and no action has been taken against crowding. On visiting the poorer quarters I found unusual poverty and misery, dirt, and darkness in every court. A miserable little cottage held seven persons at 1*s.* 6*d.* a week; an equally miserable furnished room fetched the same rent. The passages, stairs, and yards were among the narrowest, closest, and altogether the worst I have seen.\* In Preston Street I visited a house of six rooms, each let to a separate tenant. There were in all 11 adults and 20 children, the largest of these families being 2 adults and their 5 children, who thus had only one upstairs room for all their necessities. A similar family was the largest confined to one room in Shearman's Court, West Street, where some paid 1*s.* 3*d.*, and some 1*s.* 9*d.* a week for their accommodation, and 1*s.* a room was common. In Uwin's Lane I visited a house of 4 rooms, in each of which lived a family of 7, 6, 5, and 6 respectively. In another, near by, were families of 6, 2, and 6, in single rooms. In both houses the rooms were large. In Taylor's Buildings, Commercial Road, the rooms were large. Some people here have less than two rooms; the largest families sleeping in one room were a pair with 6 children and a pair with 4. No lodgers or other strangers were heard of in any of those families. I visited Stones' Court, and found a very similar condition.

The town clerk told me that 20 or 30 families were sometimes supplied with but one privy-closet in Exeter.

At Colyton Grove I saw an old couple or two whose only accommodation was a kitchen in a dry arch under a house, such as would usually be called "underground" or a "cellar kitchen," though not accurately described so. They were not uncomfortable. One said "people about were" lately "much distressed when Mr.—— pulled "down a row of houses."

Common  
 lodgings.

Contrary to the usual practice, the common lodgings seem to have been fixed in some of the worst houses. The inspection of them is the duty of the superintendent of police. The definition adopted here turned upon *nightly tenancy*. No fixed cubical area was exacted, but the convenience of ventilation was in each case taken into consideration. The superintendent considered a drained closet and a good supply of water the principal necessities. He had several times taken proceedings under the Common Lodgings Act. There were 9 of these houses, and they were all visited. John Cornelius had one room with 4

\* There was in Exeter much of the squalid character of the London house accommodation for the poor, without the compensations which good wages can provide.

beds for 7 persons at 3*d.*; it measured 14 feet 8 by 11 feet 10, by 7 feet 9. There was no privy for the lodgers' use. He was a "general dealer." Emery's, 13 beds at 3*d.*, very dirty and untidy; no privy. Leppell's was better. A quantity of ashes was in the cellar. The privy also was in the cellar, and communicated with the river by a short untrapped drain or shoot. Brown's had 9 beds, and was a wretched dirty place from bottom to top; large holes in the rough and rotten flooring of a room went through to the room below. Best's had 8 beds at 3*d.*, like the rest. The privy-seat stood like a box on the landing of the staircase, with no pretence of seclusion. Chamberlain's was the only decent house. It was to be observed that this was the only house whose owners had taken care to be supplied with proper tickets and regulations, and it was by far the best. In explanation of the crowded rooms the superintendent told me that in unhealthy times, or in hot weather, he would, and had twice, shut up half of the beds. He also explained that there were public privies, cleaned by the authorities, to which the lodgers who had no privy had easy access.

The numbers quoted above as inhabiting the single rooms were merely those given me by combined testimony of inmates and neighbours. There is no reason to think they are any nearer to the truth than those given in places where, as at Newcastle, a nocturnal surprise proved that very many families received lodgers. There was, however, at Exeter no means of making such verification.

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EXETER.

## GRIMSBY.

At Grimsby, during the summer about 150 German emigrants land every week. They proceed directly to Liverpool; but it occasionally happens that through want of correspondence between the ship and the train they are obliged to spend a night at Grimsby. There is a large room in the dockyard where they are accommodated with sloping boards on which to make their beds, but there is no better lodging to be got. It is for their own good, as well as for the convenience of the railway company, that the emigrants are deterred from going into the town; and for ordinary shelter and refreshment, doubtless, the accommodation is sufficient. It has however to be observed that there is no provision whatever for a sick emigrant, who might land with cholera or other contagious disease. The workhouse is several miles off, and there is not even a vagrant ward in the town. The course most likely to be attempted is to send the sick on to Liverpool, through want of accommodation at Grimsby. The railway company has, however, as I am told, recently taken the subject of making some provision into consideration. Emigrants were not known at the common lodging houses. These houses were 11 in number, and accommodated a nightly average of 50 to 100 persons. Mr. Campbell, the chief of police, has been appointed inspector of nuisances as well as of lodgings, under the board of health. The price of a lodging was 3*d.*; the allowance of air 250 feet a head. The indigent tramps were sent to these houses by the police at the parish's expense. The reports of constables and the tales of neighbours were relied on to procure the registration of all the common lodgings, and for several years there has been no prosecution.

GRIMSBY.

As a general rule, the houses when visited proved to be untidy; and the windows were often shut. On the other hand, they, especially O'Brien's, were clean. There were too many beds in a garret,



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and sometimes a bed on the floor. There were beds on many ground floors, and in some private houses of a small kind lodgers were taken, and the people obliged to sleep in the kitchen, but no instance of marked overcrowding was detected, nor were there any cellar bedrooms. Some of the lodging-houses were made by throwing two cottages of 2s. rent together into one.

There was no medical officer, and no proceedings had been taken against overcrowding, or the use of unfit houses. Nothing had been done under the Labouring Classes' Lodgings Act.

## HULL.

HULL.

At Hull the corporation, by means of a committee of which Alderman Mayfield is chairman, carry out the health acts and local act. There is no medical officer. Mr. Miller is inspector of nuisances and common lodgings. He has subordinate officers, and gives his whole time to his official duties. In the local act clauses worth remark were observed. Section 83 gives power to compel owners to lay down flags; 95 puts the cellars under the rule of the Public Health Act; 100 forbids the conversion of a building, originally otherwise intended, into a dwelling house; 107 enables the corporation to seize, repair, and hold, or let any unoccupied property, from the owners of which their share of the cost of paving, &c. cannot be otherwise more easily obtained. 50,000*l.* were authorized to be borrowed, and with this new streets were laid out and much bad property destroyed. Sections 97 and 98 provided sufficiently for yard accommodation for new houses. A meeting of the sanitary committee of the corporation was attended. The committee dealt with a number of complaints, chiefly about noxious trades, or neglect of removal of nightsoil. There are about 40 such complaints attended to weekly. Orders were given to limewash, and were readily obeyed, chloride of lime, lime, and brushes being supplied to the poor. The committee was supplied by the district registrars with the locality of the various causes of death operating in the borough. Nothing had been done under the Labourers' Dwellings or Labouring Classes Lodgings Acts. The surveyor saw no way of making the local act or other law control the old property in the town except such as lay in the lines of the projected streets.

There seemed to be here some misapprehension of the duties of guardians under the Diseases Prevention Act, the latency of which does not seem to be understood. Indeed the last amendment of that act is not unlikely to mislead, through the position of the 10th, 11th, 12th, 13th, and 14th sections, and especially the uncertainty whether Section 14 is latent or active. It was alleged by officers of the corporation that the Diseases Prevention Act would be defeated in its most important clauses by the present division of Hull into two poor law unions. It was stated that a year and a half ago a ship brought in a crew sick of smallpox. The authorities were charged with delay in interfering, the ship was said to have moved from one union to the other, and was never got at. Many men were said to have died, and many were removed sick into the town where there is a sailors' home.

The 13th Section of the Nuisances Removal Act had only been used in instances where there was the presence of fever.

Common  
lodgings.

No prosecution under the Common Lodgings Act had tested the point, but it was generally thought that the definition of a house subject to the Act, turns on a *nightly tenancy*. At Hull the inspector of common lodgings has contented himself with a general super-

vision, without any exact registration or measurements. There is no difference known between a registered lodging and any other poor lodging house, a great number of the poorer houses being subject to inspection, and all the common lodgings being supposed to be included among these. The register ended with the 706th entry in March 1860, consequently the number is not known, and no record is now kept. The plan supposed to be followed was that each house was judged to be able to hold so many persons, according to a guessed estimate of its capacity and means of ventilation, and this estimate was to be made by the committee, not by the inspector.

There are very few inhabited cellar-bedrooms. No proceedings have for five years been taken against overcrowding. The committee estimated the houses in the borough at 24,768, and the population at 117,648, or 4·75 per house. The increase of houses and people was said to go on evenly; but there proved to be reason to doubt the low estimate of persons per house. Many of the houses are large, and in such a crazy filthy staircase will lead to 8 or 10 rooms, let at 1s. or 2s. to a small family. Sometimes, in a single room of this sort a number of lodgers were to be found; and the inspector mentioned having lately opened a door, and seen a quantity of women (as he described them) shiftless and sheetless, "like naked mermaids in a sea of shavings." These lodgings were sometimes furnished with a few shillings' worth of goods, when a high price was asked. A good deal of such misery was seen. The rooms were in very poor condition, and the people very destitute. Still overcrowding was not usual, for as a rule, single-room occupiers do not here take lodgers in addition to the family. When they do, the inspector, who occasionally visits by night, orders the lodgers out, and warning notices are served. No. 17 Trippet Street was visited. There were 10 rooms; one family of four adults with two children occupied two rooms, and paid 1s. 8d. a week; another family of five adults and a child occupied three rooms, and paid 3s. The rest had one room to each family, at the following rates:—a pair with four children paid 1s. 4d.; four adults paid 1s. 7d.; four adults paid 1s. 10d.; the two garrets, of prismatic form and six feet high, received two persons in each, at 7d. a week.

In Leadenhall Square numerous rooms were let to small families at 1s. or 1s. 6d. each.

Strelitz's and Moss's were emigrants' agencies and lodgings, and were sadly neglected places.

In Blue Bell Yard a house of four rooms was visited which held four families, of which the largest was a pair with five children. The rents were 1s. 6d. and 1s. 9d. a room.\*

In Todd's Entry there were houses every room of which held a small family, at 9d. to 1s. 6d. rent. Some of the houses had six, seven, or eight rooms. Indeed large houses were common, and were placed very close together.

In Mill Street and South Street were a few dirty German families, but all had beds. A lot of musicians might sometimes be seen lying asleep on a floor, but only for a single night.

Jackson's Square was of small "back-to-backs" with two bedrooms; in one the family was of nine, in others of four or six, and in one a family of two received four lodgers.

In Mill Street, in single rooms, were found a pair with four children, and a woman with five. Some of the accommodation here was miser-

\* The occupiers were not residents in these old parts of the town, and the kitchens were let as bedrooms.

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ably small and filthy. The large lodging-houses were almost without exception untidily kept in very important particulars. Some of the back rooms of the ground floor were really unfit for inhabitation. Among the worst instances of large families crowded into single rooms were those of three adults with six children, of two with four, of three with four, and of two with six, and such, though very bad, were uncommon.

Ropery Street supplied an instance of want of yard and privy room, where a property was so confined that nothing short of destruction of a house would give room for a privy.

The privies were often within the house, under bedrooms; but it must be explained that the cesspools were very small and shallow, easy to get at, and intended to be weekly or oftener emptied by the nightman by means of a shovel and tub. The sewers were flushed by the sea-water being let in at high-tide from the docks which encircle the old town.

No town would gain more than Hull by a judicious adoption of the principle of the Liverpool Act. The courts are remarkably narrow, and a house might here and there be removed with infinite advantage to light and air. In the rather newer parts the houses are often of two storeys only, and have a garret in addition in the roof. Ten feet by ten is a common size. A little house of this sort may be let at 2s. 2d. to 2s. 6d. a week, and their great number must be a source of comfort to the Hull labourers. It is not possible to build new houses in accordance with the building byelaws for less than 120l. to 140l., and although something may be taken off for the diminished profits of builders, the main difference of cost must be found in an increased rent. The wisdom of the byelaws is not here attempted to be impugned, for as has been before stated there is no general overcrowding in Hull, nor are cottage rents high. The only streets in which cellar-bedrooms were found were Sykes Street and Charterhouse Lane, where single-room lettings seemed to prevail. The cellars had generally the required front areas, and only one was seen to be less than three feet above ground. The rents of cellars were 1s. 6d.

A public-spirited lady has built some rows as model houses for working men, and as adding to the gross number of houses and reserving a large yard she has done much good. The houses are immensely solid and costly. They are on the principle of flats, a principle unreasonably forbidden by the byelaws of some towns as against public health. The ground floors are let as houses of four rooms with a scullery at 11l., or in smaller takes with one bedroom at 2s. 6d. a week. Above are other flats with an outside staircase and gallery. Each tenement has a water-closet.

Old Hull completely covered the island on which it stands with buildings, and this position explains the general want of space; but now, when building has long crossed the water, there are plenty of environs in which small houses may be built, with sufficient breathing room, and the ordinary long rows will supply the cheapest houses. A rent of 11l. ought to command a very good house, without either loss or charitable gift on the part of the owner.

## IPSWICH.

IPSWICH.

The corporation of Ipswich as a local board have the usual officers, but have rather forbore to press the law against such evils as might be found, because of the poverty of some of the cottage owners. The



officers have no very difficult task, for, except a place called the Bar-racks, there is not a really bad quarter in all the town. There are a few little cottages of one bedroom found on the Charity land, but hardly any where else. There are no properties without privies, no cellar bedrooms, and in only one instance (in Curriers' Lane) was there a privy under a bedroom. A watercloset in a cellar was known to exist in Brook Street. Attention was called to Dove Lane, Long Lane, and Short Lane, as close ill-built places, but here were no alleys with opposite houses less than 7 or 8 feet apart, nor less than 4 feet wide where one side only was built on. The privies were not emptied by the corporation, and were not very well attended to. In a few instances only were there houses sublet by the room, and a visit of inspection confirmed the testimony of all the officers that overcrowding was hardly known. So far as good buildings can be a source of comfort, Ipswich seemed to be a most desirable place of residence for a working man's family.

No byelaws had been issued for the regulation of common lodgings, and therefore no exact measurement was made. Mr. Mason, the head constable, kept a register, and visited the houses. There were only about half-a-dozen, and of them several were beer-houses. Only one new entry had been made in the last 12 years, but the houses on the register were well inspected and in good order. In consequence of its remote position, the town is not visited by many tramps, and the public-houses receive a large proportion of such as come.

Mr. Norcutt, the town clerk, related an instance in which he thought the local authorities were so hardly treated that they might fairly expect an alteration of the law so as to give the justices a discretionary power of making, varying, or refusing an order. The board had made a watercloset drain for a man who refused to do it himself, and lost their money, because the owner proved that the workmen had varied a little from the original plan contained in the notice. Such variations cannot be secured against even by the most skilful surveyors, as unexpected differences of soil are occasionally met with, which require exceptional treatment.

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## LEICESTER AND LOUGHBOROUGH.

The corporation of Leicester as a board of health has appointed Mr. Moor medical officer at 100*l.* a year, and he has published a series of annual reports, of which copies are sent in. The clerk to the board is Mr. Stone, the well-known writer of the Justices' Manual. The inspector of nuisances and common lodgings is a sergeant in the police force, who, however, reports directly to the board. He visits the registered lodging houses occasionally by night, but does not think it right to visit suspected houses. There are 29 registered houses now open. The last entry of a newly registered house was in March 1863, and probably a few more houses have commenced receiving lodgers since, and require to be put on the register. There were a few years ago some convictions for crowding and for mixing sexes in registered houses, but the inspector had not lately seen occasion for prosecution. Eight of the houses were visited, of which two, Conroy's and Conolin's, were unusually filthy and miserable. Mr. Stone's opinion on the subject of the definition of a common lodging was that expressed in the first opinion of the attorney and solicitor general of 1853; but he did not understand by the words "short period" any time necessarily under a

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week or even a month. The board has often threatened proceedings against overcrowding under the 29th section, but only a few instances have been prosecuted. There is not supposed to be any overcrowding now, but two years ago, when trade was very active, and a number of houses in the old town had been destroyed, and before there was an adequate supply of new, there certainly was overcrowding, and Mr. Moor described it as taking the form of the filling a four-roomed house with two families, or if small in number with even three, each family having a bedroom, and the kitchen being used in common. Single room tenements are now very rare indeed, are nearly always let furnished, and never to persons of more than one family, while cellar bedrooms are quite and bedrooms over privies nearly extinct. Orders to clean are readily obeyed. The new houses are dear, but through the industry of the women incomes are large. Mr. Moor holds the "one family" of the 29th section to mean no more than parents and their children, and demands 250 cubic feet for private just as for registered lodgings.

There is the common byelaw claiming power to close unfit houses, and its terrors have enabled the authorities to shut up several, when the medical officer has certified them to be uninhabitable by reason of the walls being unsafe, the roofs ruinous, or the windows out. Mr. Stone, in a letter to the Local Government Office, dated 19th December 1864, points out several of the byelaws of his board which though almost identical with the models furnished by the general board are not as he considers warranted by the Act. Among the doubtful byelaws is of course this power of closing old houses, and also an exceedingly valuable regulation, which although not bearing exactly on the subject, may be quoted here for its singularity. "11. Every room in any " house or other building now erected or to be erected which shall " be used as a day school shall, unless supplied with special means of " ventilation to the satisfaction of the local board, be so used subject " to the following regulations; namely, if the room shall be less than " 8 feet 6 inches in height . . . . . the space for each scholar shall be " 9 superficial feet at the least; and if such room shall be 8 feet 6 inches " or upwards in height, the space for each scholar shall be 8 superficial " feet at the least." The medical officer thought 40 feet the average cubic space for each child before the byelaw was made.

## Day schools.

The medical officer's report for 1862 states that the number of persons to a house in Leicester varied in the several parishes from 3·75 in Black Friars to 4·75 in St. Mary's and St. Martin's.

In 1858 the medical officer reported, "The overcrowded state of " dwelling houses is a part of our sanitary legislation over which at " present there is only a partial control. The local board can only " interfere for its prevention where there is more than one family in " the house, and this power has been exercised very beneficially in " many instances, especially where there has existed disease of a " zymotic character; but unfortunately there are cases in which the " house is too small for the health even of one family . . . . . A man, " his wife, and eleven children were all living in a small two-roomed " house, which had no back door . . . . . and all slept in the only " bedroom, which measured 12 feet by 10, and was 8 feet in height. " In this room, under our byelaws of common lodging-houses, only four " persons would have been allowed to sleep. It is from this class of " dwellings that we have most to fear for the origin and spreading of " zymotic diseases."

LOUGH-  
BOROUGH.

At Loughborough the local board of health employs an officer as inspector of nuisances and of common lodgings, at a salary of 20l. a

year. It seems to be no part of his duty to make night visits. He has not had occasion to prosecute any instances of overcrowding under the Nuisances Removal Act, and has had no complaint against breakers of the Common Lodgings Act. The administration of these houses was not, however, satisfactory to the police, who, on occasional visits for police purposes, or for the half-yearly return to the Home Office, had found mixture of the sexes and other offences against the law, which they thought would not have been attempted had occasional night visits by an inspector hung over the offenders. The houses were five in number, and received 66 threepenny lodgers. Although 250 feet of space was demanded by the board, the beds seemed too many, and some were without bedstocks. The floors were of concrete. Horsby's was an ill-supplied house, and Clarke's was wholly unfit to remain open, for there was but one bedroom, parted by a low wooden frame into two cells. Here was a sick man in bed, and sad neglect of tidiness.

There could hardly be any crowding, rents being low, and 200 or 300 houses being reported to be to let. Houses which had become ruinous had lately been patched up, at the instance of the board, but without legal process, and there is not probably a single house unfit for habitation in the town. Cleaning orders, though informally given, were never resisted. The board had new byelaws awaiting sanction, and among them was that useless one so often referred to, under which local boards thought they had power to shut up unfit houses. There were no cellar bedrooms, nor bedrooms over privies. Some almshouses for old ladies were the only single-room tenements.

### MERTHYR AND ABERDARE.

At Merthyr Tydvil, which is united in a borough with Dowlais, and is managed by a board of health, there is an inspector of nuisances, Mr. Jenkins, who, with the tacit sanction of the board, has felt compelled by circumstances to suspend action against many nuisances, and especially against overcrowding.\* Through him the board supplies lime and brushes, and does a little to maintain cleanness. But the board expects speedily to obtain a general sewerage of the town, and is therefore unwilling to order an increase of the number or size of privy receptacles. For want of houses, no action is taken under section 29 to abate overcrowding. The guardians of the poor have occasionally been moved by their medical officers into representing this evil of overcrowding to the authorities, reporting cases of fever where there were, for instance, "five beds in two small rooms," but no action was taken. These cases were not reported to the police, although the superintendent of the county force is the inspector of common lodgings. The inspector has reported to the board that, if the byelaws affecting common lodgings (which are in the usual form) are carried out, half the registered houses will have to be for some reason or other closed. For want of a work-house or vagrant ward the police are obliged to send vagrants to the registered lodgings. There are about 60 of these houses, accommodating an average of 10 persons with 250 cubic feet space to each. Even in these houses the board has felt obliged to permit the entire absence of privy or yard. The definition here depends on *nightly tenancy*, and consequently there are a great number of unregistered lodgers taken. The houses where this goes on are well known to the superintendent, who, although he kept no list, nor recognised them as a sort of second class

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\* A better management has commenced at Merthyr since my visit, with the appointment of Mr. Dyke as officer of health.



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of inspected houses, as is done at Cardiff, still visited them at night, in order to abate crowding, and thought he had met with success in doing so. He said that several hundred houses were let in single rooms, and of them many were crowded; but he felt obliged, through the want of houses, to tolerate them, so long as the inmates were of decent behaviour. There appeared to be no cellar bedrooms. The surveyor occasionally recommends the board to make orders for ventilation and cleaning, and the board has in a few instances, under the supposed authority of a byelaw, shut up houses unfit for habitation. No action has here been taken under the Labourers' Dwellings or Labouring Classes' Lodgings Acts. The registered lodgings showed the result of this paralysis of the authorities action. Griffiths' had no privy and no yard; the inmates "went to the river." There was in the house every conceivable dirtiness and untidiness. Barry's was like it, but had a yard. O'Malley's was crowded, but cleaner. So was Rhodes' cleaner, but mobbed with tramps and cadgers, whose bags and rags lay all over the house.\* Although there was this great pressure for houses, the rents did not seem high; 2s. a week was often paid for a four-roomed cottage. The old town was built of back-to-backs chiefly.

Officer's ex-  
planation.

Having made these unfavourable comments on the state of the Merthyr common lodgings, I feel it right to present the following letter (dated October 16,) which I have received from the chief of police:—

"IN reply to your inquiries, I beg to state that I am superintendent in the Glamorgan Constabulary, and have held the appointment of inspector of common lodging-houses, under the Merthyr local board of health, for the last 12 years.

The population of Merthyr last census was 50,000. We have in the parish about 60 registered lodging-houses.

I was asked to take the office of inspector because it was found that a private individual did not carry with him the requisite authority, and was consequently frequently opposed.

When I took the office, I found the houses in a crowded and dirty state. A code of byelaws for their regulation was published by the local authority, and the keepers of the houses were made acquainted with them, by their being printed and circulated amongst them, and by verbal instruction from me.

I have laid a great many informations against the keepers of the lodging-houses, and always obtained convictions for breaches of the byelaws. None of

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\* At Merthyr, in 1865, Timothy Coffee was summoned for keeping a common lodging-house without its having been inspected and without its being licensed. The house is in Brecon Street, Dowlais, and was visited on Sunday night by P. S. Howlett. He found four beds in two rooms, and they contained 10 persons. There were three in two beds. The rooms were very small and dirty. The landlord, his wife, and three children, were in one bed downstairs in a very small room. There are four rooms in the house. Defendant said he did not keep so many lodgers regular. Some of them came in that night. The officer had been to the house on other occasions, and had not found so many there then. There were only five persons besides his family. Mr. Wrenn said the house had been inspected over and over again. It was a very poor place, and was not fit for the purpose for which it was used. Mr. Bishop said it was a bad case, and he must therefore be fined the full penalty, if not, to go to prison for a month.

Patrick Sullivan, George Street, Dowlais, was also summoned for keeping a lodging-house unlicensed. P. S. Howlett proved the case. There were nine people in three beds, and himself, his wife, and three children in one bed downstairs. Defendant said two of the people were visitors. The magistrate fined him 20s., or to go to prison for seven days.

John Downey, another unlicensed lodging-house keeper at Dowlais, next appeared to a summons. The defendant said he had never received a notice; but Mr. Wrenn stated that about two years ago large placards were posted to the effect that it was necessary that all lodging-houses must be licensed. Downey said he would just as soon have his house licensed as not. He did not know it was necessary to have a licence. Mr. Bishop said the house was not large enough for a lodging-house, and he must be fined 1*l.*, including costs, or go to prison for seven days.

them were professionally defended, and consequently no legal objection has yet been taken, and I have hitherto found that the Acts 14 & 15 Vict. c. 28. and 16 & 17 Vict. c. 41. contain sufficient powers for the proper regulation of those houses.

The inspection has been attended in this neighbourhood with great benefit to the health and decency of the localities in which the lodging-houses are situate. It has also greatly facilitated the detection of offenders. Before the passing of the above Acts, common lodging-houses were private, and admission to the police was frequently refused; but I have never met an instance of refusal since they have been under my inspection.

As Merthyr was without water, and but partially drained, it was found impossible to carry out the byelaws in their entirety, but as a plentiful supply of water has been now laid on the town, and its drainage commenced, they will in future be carried out stringently.

The board of health has recently appointed Mr. Dyke, a surgeon of great experience, as medical officer, and I anticipate that his assistance will be most valuable in carrying out the regulations.

In addition to the registered lodging-houses, there are from 200 to 300 cottages in various parts of the town, tenanted principally by Irish, who are constantly in the habit of overcrowding them with lodgers who are railway or occasional labourers. I also visit and inspect these, and report upon them to the board of health, who have ordered the occupiers to be summoned, and I have obtained a great number of convictions against them before the stipendiary magistrate for "keeping unregistered lodging houses;" and penalties varying in amount from 1*l.* to 5*l.* have been inflicted. In many instances they have been paid, and the others have been sent to gaol.

I have, of course, no right to enter these houses, but having been actively engaged in the constabulary of this district for upwards of 20 years, and thereby well known, the occupiers pay deference to and admit me. The practice goes on unchecked, I know, in other places, and as the occupiers may refuse to open the doors if they choose, I would suggest that the police or other persons appointed inspectors should, by Act of Parliament, be armed with a general warrant giving them power to enter, such as we have for inspecting weights and measures. Overcrowded houses are easily discovered in the night time, from the stench generally emitted from them.

I append particulars of some of the cases of overcrowding in these unregistered houses.

#### Some particulars of overcrowded and unregistered lodging houses.

House of Jeremiah Shea, Thompson's Court, Dowlais, October 3d, 1865. 12 persons, viz., Shea, his wife, and four children in one bed, and six more in two beds, in one small room.

Michael Lane, Union Street, Dowlais; 12 persons, viz., eight men, three women, and a boy, in five beds, in two small rooms; and the house very dirty.

John Connors, Castle Street, Dowlais; 11 lodgers, viz., nine men, a woman, and child, in five beds, in two small rooms up stairs; Connors, his wife and child, sleeping down stairs.

James Shean, Castle Street, Dowlais; eight lodgers, viz., six men, a woman and child, in two small rooms, in four beds.

James Keefe, Rosser's Court, Dowlais; 16 lodgers, viz., four men, four women, and eight children, in two small rooms upstairs; Keefe, wife, and three children sleeping down stairs.

Daniel Shea, Brecon Street, Dowlais; nine lodgers, viz., five men, two women, and two children, in two small rooms up stairs; man, wife, and child sleeping down stairs.

Phillip Connor, Brecon Street, Dowlais, having 10 lodgers, viz., eight men, one woman, and a child, in four beds, in two small rooms.

The above are a sample of the whole; a great number of the others can be given if required."

Aberdare is a new town of about 40,000 persons, governed by a local board of health, who administer the acts in question through the sergeant

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in command of the Glamorganshire Constabulary there, who has an appointment as inspector of nuisances and of common lodgings, on which matter he reports directly to the board, although he is, as a police officer, in the district of Superintendent Wrenn, of Merthyr. No inconvenience was thought to have arisen from this arrangement. The sergeant was apparently a prudent and industrious man. He had the advantage of a medical officer of health (Dr. Davis) to refer to, and the town being new was free from the great difficulties which beset the officers in old cities. Dr. Davis had accepted his office at the nominal salary of 12*l.* 12*s.*; and it appeared that his official position relieved him from all the odium which may attach to a medical practitioner's interference with private interests, and gave him the confidence of the magistrates. Wherever disease was found to be nesting he directed the inspector to make a minute examination, and in consequence he had obtained by magistrate's order the closing of all cellar bedrooms, and also of all bedrooms made out of stables, brewhouses, or other buildings not intended for inhabitation, except where they could be made quite suitable.

In respect of overcrowding the officer of health occasionally measured the rooms, and gave evidence as to their capacity to accommodate certain numbers, while the inspector proved the numbers resident. The cases had been proved, and the offenders cautioned by the magistrates. In September, the day before my visit, the inspector reported to the board three instances of overcrowded houses, which were ordered to be tried under the 29th section of the Nuisances Removal Act, and were certified by the officer of health. The cases were of 14 persons, of 15 persons, and of 14 persons, respectively, living in three small houses of three rooms each.

## Common lodgings.

In this great town there are but seven common lodging houses, and the explanation of this seemed to be the diversity of opinion as to what the act meant to comprise. This diversity of opinion paralyzed the inspector, who seemed to make no attempt to push his powers, no new house having been put on the register since 14th October 1861. The space demanded was 250 cubic feet. I visited all the common lodging houses. With one exception, the floors and walls were good, and all had privies and small yards, without which a common lodging is not tolerable. The charge was 3*d.* Taylor took 16 lodgers, and kept a clean house. On inquiry, the mistress complained of a difficulty in getting rid of sick people, which seemed to be due rather to the distance of the workhouse than to any officer's neglect. She told me that in her house this year there had been two deaths from typhus and one from small pox, and the mistress herself had been ill ever since the typhus. Next door to this unfortunate house was Fry's, a dirty house, taking another 16 lodgers. Murphy's was the best house, but there was a bed on the floor. Another Irish house had no tickets, and an excess of beds beyond the measure.

Rents were rising; a house of three bedrooms might, however, be had for 3*s.* or 4*s.* a week. There seemed to be a paroxysm of good trade, and Dr. Davis said he thought there was not now a house to be let in the town. The small houses were not often back to back, and a large proportion were real models of good arrangement. The sergeant told me that the town was so full he could not always find a bed for a wayworn vagrant. I visited a few of the private houses, and saw proof of the necessity of some more direct interference with the crowding. I called on O'Connell. He paid 4*s.* 2*d.* a week rent. There were four beds upstairs, and a man sleeping in one. At Day's I found the front bedroom was the whole house of two married pairs and two children; the back bedroom belonged to two single men; in the side bedroom lived a pair with one child. The ground floor of two rooms below was occupied by



a pair with four children. In another house, with an earthen floor, there was a bed in each kitchen, and three beds in the only room upstairs.

I quote from the local papers the following example which lately occurred at Aberdare of a very common defence used in prosecutions under the 29th section of the Nuisances Removal Act.

Frederick Day was summoned by the board of health for carrying on a house as a lodging house, 15, Hale street, it being overcrowded.—Dr. Davies, medical officer to the board, proved the case, and certified it as being dangerous to the health of the inhabitants. On the 23d September he found 17 persons in the house, which contained two sitting-rooms and three small bedrooms. Nine at the utmost was a sufficient number for it to contain at one time.—Defendant said there was a man and woman and four children in his front-room, whom he had been waiting to get rid of for the last six months, but they would not go.—Mr. Hollier said he had during that time increased the number of his lodgers, and called P. S. Matthews, who stated that he found 19 persons there on the 23d inst.—Mr. Fowler having explained to the defendant the danger of his conduct to those in his house and to the inhabitants, he fined him 40s., and in future to have only nine persons residing there at one time. Defendant: I aint got 40 shillings or 40 sixpences, or one in the world, if it were to save my soul. He was then in default ordered to be imprisoned for 14 days.

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## NEWCASTLE.

Like many old towns of England which have retained their prosperity, Newcastle consists of a number of large old houses within the walls, and a vast surrounding suburb of comparatively small houses, inhabited by the best of the artisans and the lower middle-class. All are crowded; but it is among the large old houses, formerly the residence of opulent tradesmen, that the system of letting single rooms mostly prevails, and most of these are overcrowded, both in the sense of every room being a bedroom, and also in each room being itself often much overfilled. The many thousands of persons who thus crowd the old nucleus are poor, and for the most part of a dissolute class. It follows that, pressed on as they are by the want of houses, they require to be treated with great judgment by those who have to administer the laws against overcrowding and the use of unfit dwellings. The corporation has made fortunate appointments; the inspectors showing skill, boldness, and yet consideration in controlling this difficult matter to the extent permitted by the law and the material peculiarities of the town.

NEWCASTLE.

The process is done through the Common Lodgings Act chiefly. Administration of Acts. Two inspectors, serjeants Hall and Ellison, are named by the watch committee, and report through the chief constable. Their duty is to inspect the common lodgings every night, and to push the registry by visiting suspected houses and bringing offenders to justice. For this purpose they divide the town into two districts, serjeant Hall taking 64 and serjeant Ellison 75 registered houses, and from ten till two every night they remain on their beats, entering all houses let in single-room tenements, and routing out the worst instances of dangerous overcrowding. This proceeding is, as has been previously explained, not surely supported by the Acts. The pushing of the Common Lodgings Act in Newcastle is a professed system of nightly house-to-house visitation. Overcrowding of persons not related, as certified by medical authority to be prejudicial to health, is not exactly the same thing as a violation of the law of common lodgings, and there is some doubtful

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legality in mixing up the two cases ; but although they have found and reported on hundreds of instances of single-room holdings in the first eight months of 1865, and have prosecuted 36 instances of crowding with success, such is the tact of the officers, that no anger or resistance seems to have been produced. The 29th section of the Nuisance Removal Act is not used ; for the inspector of nuisances, although frequently and energetically attacking internal filth, and finding lime and brushes, does not interfere with crowding.

The number of lodgers ordinarily received at the registered lodgings does not much exceed 500, but it is not for this number that the organization is maintained, for persons who do not like the name of a common-lodging keeper evade registry to a number perhaps equal to the number registered. The constant interference of the officers is said to drive the lodgers round and round the town. Not that the definition used here is too narrow for easy conviction ; but there is delay, and notice to be allowed, and a fine is seldom inflicted except for the continuance of the offence. A recent fine seemed to have had much effect ; but if the lodgers disperse after a notice, and reassemble elsewhere, to return to the old house with perhaps a new occupier, the law is evaded. There seemed to be an understanding that comparatively high-priced lodgings were free of the law, and this sergeant Hall (a good judge) thought was not a wise exemption, as it set free from control a number of abominable brothels which might be kept more decently by the simple arrangement of registry under the Common Lodgings Act. It certainly is not often that in brothels two or more occupied beds are found in one room ; but this abomination is far from unknown, and in such a case a prosecution under the Common Lodgings Act has been occasionally attempted, but without success. The plea (so often heard), "I'm just a poor woman, and take a few girls for a living," gives, if accepted, a practical immunity to any crowding, for the women are regular residents or else visitors, and the men necessarily visitors. On cross-examination of the contents of some such places in Edinburgh and other towns it was found that the women guaranteed to their landlady a minimum payment of 2s. a week as lodging money, and where this is the custom I should think all might be brought under law and order in the simple way proposed. Where the custom of lodging money was notorious, the onus of disproof in single instances would practically lie with the defendants. The inspector thought, and perhaps with reason, that a small stamp duty on a common lodgings licence would tend to make the holders value it, and assist to discover smugglers. He also, as all right-minded officers do, wished the law was made strong enough to give him undoubted authority for the duties imposed on him.

Extraordinary  
condensation of  
population.

I have heard about 1,000 single-room holdings are annually reported on. The reason that all are not convicted when overcrowded is that the people disperse on the first notice. The examples quoted proved so extraordinary that I asked to be favoured with copies of the whole return of nightly visits for this year, and a most unexpected state of society was exposed. It is known that on an ordinary inquiry made by day no such numbers are returned, and the immense number of these cases in a single town proves, either that the population is really much greater (and who can guess to what extent ?) than was returned to the Census, or that the effect of the laws against crowding is but to drive the people about the town, to reappear in fresh places every few weeks, as the officers find them. I do not think the names given in to the officers could be depended upon to prove whether this was the case. The nightly inspections have brought to light the following extraordinary

instances of families who have only one room for both night and day. Each room is one of perhaps six or more in a house.

A pair with 4 children took 2 lodgers.

"	5	"	6	"
"	6	"	3	"
"	3	"	4	"
"	3	"	3	"
"	0	"	4	"
"	5	"	2	"
"	3	"	2	"
"	4	"	4	"
"	3	"	4	"
"	5	"	3	"
"	4	"	4	"
"	8	"	0	"
"	6	"	2	"
A woman	0	"	7	"
"	4	"	4	"
"	0	"	4	"
"	4	"	2	"
A man	0	"	4	"

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These are selections, but the mass reported in the appended table should be read. The following is a list of instances to show the nature of the facts proved when convictions were obtained.

1. Sleeping in the kitchen,
2. Reception of 3 men as lodgers in a single-room tenement.
3. Two men, three women, and three children received as lodgers by a family of four adults and two children, in a single room on the ground floor, measuring 14 feet by 11 by 7 feet 7 inches. Fined 2*l.* 7*s.* 6*d.*, but went to prison.
4. 3 men, 1 women, and 1 child received as lodgers by a family of 6 in a single room 13 feet by 13.
5. 3 men, 2 women, and 2 children received by a family of 6 in a single room.
6. 2 men and 3 women received by a family of 3 in a single room.
7. 1 man and 4 women received by a family of 2 in a single room.
8. 1 man and 2 women received by a family of 2 in a single room measuring 10 feet by 8.

In 1861 five distinct lodgings were prosecuted out of one house. About 50 such are prosecuted annually, of which prosecutions about three fourths are successful.\*

There is no model lodging house, as such places are called, in Newcastle. They have been elsewhere a very great advantage to all the poor, but especially to the more meritorious, not as models, but for the accommodation they themselves afford. They have usually paid the proprietors well, and more would do so in places where, as at Newcastle, the law is vigorously applied. A number of registered lodgings were among other houses visited. The clayed floors gave to all an appearance of tidiness. Clyde paid a rent of 24*s.* a week, and received 70 lodgers. Conneton paid 27*l.* 10*s.* a year, and received 21. At these and other houses the beds were of chaff. The use of the urinal bucket was defended as the cleanest, on ac-

\* With the great majority of extra-metropolitan magistrates these prosecutions would have failed. They are a precarious use of the law. Newcastle might with advantage adopt the principle of the Glasgow Act, returning the compliment which was paid when King David copied his "Laws of the Four Boroughs" from the laws and customs of Newcastle.



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count of the rough and drunken character of the customers. Henry paid 12s. rent, and received 33 in a clean but very poor house. Another class of houses were the fourpenny lodgings, which were clean and well furnished; such were Gott's (9), Scott's (9), Baron's (31). Sewell's was a well-managed house for 40 persons, all single men, except in a few small rooms let singly to married pairs. Mabon paid 20l. for a house of four rooms, which held 16 persons at 4d. Some houses have lately been refused licence on the ground of being too small to ensure seclusion of the sexes. Convictions were obtained in 19 instances against registered lodgings keepers in the first eight months of 1865.

## Cleaning.

The byelaws of many towns prescribe that all occupiers shall whitewash, wash, or cleanse interiors, "so that no offensive smell shall be caused by or *proceed* from the same." These terms seem rather to show an intention of protecting the outside strangers or neighbours than the inmates. There does not in Newcastle seem to be any difficulty in enforcing whitewash orders. Much is done by friendly advice, with the supply of lime and brushes; and a constant visitation is going on, aided by the lodging-house inspectors. There is no medical officer, but the union surgeons are available as witnesses. No prosecution has ever failed, as judgment is shown in selecting cases. Cellars have been effectually cleared of beds, and houses have been closed during the presence of a nuisance. The number of complaints against nuisances received in the last year was about 4,000, and the instances were chiefly of unclean privies or want of whitewash. 44 of these cases had gone to trial. The powers proved sufficient, and the people paid their fines. The last case was in August 1865. In May 1865 a person was fined 7s. 6d. for internal filth. In March about a dozen cellars were closed by medical certificate; the Newcastle Act not prescribing any conditions of cellar inhabitation, but leaving "unfitness for human habitation" to be proved in each instance.

These are the provisions of the Act of 1865:—

Cellar clauses  
in New Act.

Sect. 83.—For preventing the use, for human habitation, of underground places unfit for that purpose, the following provisions shall have effect, namely:

- (1.) In case, at any time after the commencement of this Act, any cellar, vault, or underground room occupied as a separate dwelling, is unfit for human habitation, regard being had to the mode of its construction and its condition, or to the supply or want of sanitary or other conveniences to be used therewith, the corporation may, by order served on the owner and occupier thereof, order that the occupation thereof as a separate dwelling be, from the expiration of one month from the service of such order, discontinued;

If any owner appeals against any such order, the occupation as a separate dwelling of the cellar, vault, or underground room to which the order relates, need not be discontinued until the expiration of fourteen days after the confirmation of the order of the corporation, unless such appeal ceases to be prosecuted;

If any person lets, or suffers to be occupied, or occupies as a separate dwelling, any cellar, vault, or underground room, after the time when the occupation thereof as a separate dwelling ought to be discontinued according to the provisions of this Act, he shall be liable to a penalty not exceeding twenty shillings for every day during which the offence continues; but any owner shall not be liable to such penalty in respect of any time after he has given notice to his tenant to quit and deliver up possession of such cellar, vault, or underground room, and has ceased to receive or claim any rent for the hire or occupation thereof, and the burden of proving such notice, and the cessation of receipt of and claim for rent, shall be on the owner;

Upon the application of the corporation, and proof of the order for the discontinuance of the occupation as a separate dwelling of any such cellar, vault, or underground room, and proof that no appeal in relation thereto is pending, any justice may order the occupant of such cellar, vault, or underground room to be removed, and any constable may enter therein, and do, or assist in doing, all matters and things necessary for that purpose, and in the event of access thereto for that purpose being refused, any justice may grant a warrant for forcibly entering therein; and if any person resists or wilfully obstructs any constable in the execution of his duty under the present section, he shall be liable to a penalty not exceeding twenty pounds.

Throughout Newcastle and Gateshead houses have been recently destroyed in considerable numbers, and the town is described as being fuller than has been ever known before, hardly a room being to be let. Houses which were let as houses a few years since are now let in rooms, the occupier being sometimes, though not always, resident. A flat of three rooms brought 10*l*. Single rooms varied in price from 8*d*. and 1*s*. 3*d*. to 3*s*.

The corporation was reported to be about to make a new byelaw on the subject of uninhabitable houses. The Newcastle Act of 1865, being one of the latest local acts obtained by towns which are unwilling to receive the Local Government Act; the following extract bearing on the subject of street improvement will be interesting :—

Sect. 40.—The corporation shall, not less than eight weeks before they take in any parish fifteen houses or more occupied either wholly or partially by persons belonging to the labouring classes as tenants or lodgers, make known their intention to take the same by placards, handbills, or other general notice, placed in public view upon or within a reasonable distance from such houses; and the corporation shall not take any such houses until they have obtained the certificate of a justice that it has been proved to his satisfaction that the corporation have made known their intention to take the same in manner herein-before required.

Powers were taken to make many new streets, and the operations will probably end in an improved town; but certainly there is at the present moment a difficulty in providing for the people to be ejected from the demolished houses. House building does not go on very fast, only 187 having been built in the year ending August 31, 1864, and of these 99 were of 25*l*. per annum value and upwards. In the same year the corporation's annual report records 29 rooms closed as unfit, and 12 served with the notice for the same purpose, a considerable deduction from the new accommodation; and as trade is very brisk, a long time will probably elapse before any sensible relief of pressure is found. Whether that time ought to be and can be hastened is a question which requires the most serious consideration of the nation.\*

\* The annual report of a physician to the Newcastle Fever Hospital, Dr. Embleton, says, "from various inquiries and observations that have been made, there can be little doubt that the great cause of the continuance and spread of the typhus has been the overcrowding of human beings and the uncleanness of their dwellings. The rooms in which labourers in many cases live are situated in confined and unwholesome yards and courts, and for space, light, air, and cleanliness are models of insufficiency and insalubrity, and a disgrace to any civilized community; in them men, women, and children lie at night, huddled together; and as regards the men, the night-shift succeed the day-shift, and the day-shift the night-shift, in unbroken series for some time together, the beds having scarcely time to cool; the whole house badly supplied with water, and worse with privies; dirty, unventilated, and pestiferous;" and the doctor's strong colours are sufficiently justified by the details here given. It seems strange that public spirit is not sufficiently roused to provide a few large and wholesome lodging houses.

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Cases in which notice was served on persons keeping lodgers OCCUPYING ONLY ONE ROOM in the A and D divisions, extracted from the Register kept by the Lodging-house inspectors :

Year.	Month.	Name and Number of Family.	Residence.
NEWCASTLE.			
1865	3d January	Bridget Gaffeny and 2 children, 4 men and 4 women lodgers.	Seven Stars Entry, Pandon.
"	"	John McGraw and Mary W. -	Do.
"	"	Letitia H. and Thomas Wilson -	Entry, Pandon.
"	"	Ann Harrison and 4 children -	Do.
"	"	James Gormerly, wife, and 3 sons.	Do.
"	"	Mary Ann Liddell and 1 lodger	Tinn Entry.
"	"	Michael McGuire, wife, and 4 children.	Pandon.
"	"	Richard Hewitt, wife, and 4 children.	Do.
"	5th January	— Clark and Mary G. - -	Hall's Yard, Silver Street.
"	"	Elizabeth Smith and 3 daughters	19, Silver Street.
"	"	James Weir, wife, and Charles Broom.	Meeting House Lane.
"	"	John Coleman, 2 female lodgers	Do.
"	"	Ellen Ruddy and 2 lodgers -	25, Silver Street.
"	"	Edward Tunnah, wife, 1 child, 1 lodger.	Do.
"	"	John Melvin, wife, 4 children -	23, Silver Street.
"	"	Michael Gormorly, wife, 4 children.	17, Silver Street.
"	"	Patrick Scanlin, wife, and 5 children.	Do.
"	"	Patrick McAllister, wife, 5 children.	23, Silver Street.
"	"	Martha Brotherton and 1 lodger	Silver Street.
"	9th January	James Watkin, wife, and 1 lodger	Dog Bank.
"	"	Morty Flynn, wife, and 7 children	Do.
"	"	Patrick Laydon, wife, and 4 children.	Do.
"	"	John Muloy, wife, 2 children, and 2 lodgers.	Do.
"	"	Maria Appleby and one lodger -	Do.
"	"	Francis Forest, wife, and 3 children.	Do.
"	"	Martin Welsh, wife, and 4 children.	Do.
"	12th January	David Hartly, wife, 4 sons, and 3 lodgers.	Pandon.
"	"	James McQueen, wife, and 3 children.	Deane.
"	"	Edward Lewis, wife, and 3 children.	11, Deane.
"	"	Peter McGinley, wife, 1 child, and 3 lodgers.	Do.
"	13th January	Archibald Craggs and 8 lodgers	Weddels Entry.
"	"	Jane Anderson and 2 lodgers -	Broad Chare.
"	16th January	Patrick McDonald, wife, and 3 children.	St. Ann's Street.
"	"	John Timlin, wife, 1 child, mother, and 2 lodgers.	Rows Gallery.
"	"	Dorothy Cockburn and 5 children	Ropery Bank.
"	"	William Kelly, wife, and 6 children.	Do.
"	"	Bridget Partland and 2 sons, 1 daughter and 1 male lodger.	Do.



Year.	Month.	Name and Number of Family.	Residence.
1865	16th January	Elizabeth Campbell and 4 children.	78, New Road.
"	18th January	Samuel Gibson, wife, and 4 children.	Sweep's Entry.
"	"	Catherine Campbell and 1 lodger	14, Wall Knoll.
"	"	Joseph Tait, wife, and 4 children	Do.
"	"	Patrick Conlin, wife, and 3 children.	High Yard.
"	"	John Clark, wife, 6 children -	Do.
"	"	John Dowd, wife, and 5 children	Do.
"	"	John Siron, wife, and 6 children	Do.
"	"	Patrick Riley, wife, and 5 children.	Do.
"	"	Edward McAndrew, wife, and 4 children.	Dummie's Entry.
"	"	John Hunt, wife, and 3 lodgers -	Do.
"	20th January	Charles Greffen, wife, and 4 children.	15, Cowgate.
"	"	Catherine Normanby and 4 lodgers.	Do.
"	23d January	John Lyn, wife, son, and mother	Grey's Yard.
"	"	Martin Radiken, wife, and 3 children.	Do.
"	"	Charles Stewart and Mary Ann C.	Ormston's Yard.
"	"	Ann T. and Thomas Crawley -	Do.
"	27th January	William Callighan, wife, and 2 lodgers.	Blacksmiths Entry.
"	"	John Shannon, wife, and 4 children.	Do.
"	"	Bridget Gorvan and 2 lodgers -	Do.
"	"	Margaret Humble and 2 lodgers	Do.
"	"	Mary Harrison and 1 lodger -	Do.
"	"	Ann Roberts and daughter, 1 lodger.	Do.
"	"	Jane Brown, 1 male lodger -	Do.
"	"	Thomas Hannan, wife, and 5 children.	Do.
"	30th January	Owen Coxon, wife, 5 children, and 6 lodgers.	Chapel Buildings.
"	"	James Goodfellow, wife, 3 lodgers	Pandon.
"	"	John Johnston, wife, and 5 children.	Do.
"	"	Elizabeth Ann Keegan, 2 children, and 2 lodgers.	Do.
"	"	Francis Marron and 1 female lodger.	Do.
"	"	Andrew Montgomery, wife, 2 children, and 2 lodgers.	Do.
"	"	Mary Nelis and 2 lodgers -	Killing House Entry.
"	"	William Watson, wife, and 4 lodgers.	Plummer Chare.
"	16th February	John Sheridan, wife, and 3 children.	Stock Bridge.
"	"	Margaret Amos and 6 children -	Do.
"	"	Francis Holland, wife, 4 children	Silver Street.
"	17th February	Thomas Curley, wife, and 4 children.	Pandon.
"	23d February	James Donoghue, wife, and 4 children.	Bank.
"	4th March	Mary Morman, 2 female and 1 male lodger.	Hall's Yard.
"	6th March	Francis Tomey, wife, and 3 children.	Blue Bell Entry.

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Year.	Month.	Name and Number of Family.	Residence.
1865	6th March	Mary Lavan, mother, and child-	Blue Bell Entry.
"	"	Martin Graham, wife, and 5 children.	Do.
"	"	Patrick McLaughlan, wife, 5 children, 1 lodger.	Do.
"	"	Michael Macken, wife, and 5 children.	Blacksmiths Entry.
"	"	Dinnes Dawd, wife, and 3 children.	Do.
"	"	Matthew Moor, wife, and 3 children.	Anchor Bank.
"	"	Ann Roan and 5 children -	Do.
"	"	John Armstrong, wife, and 4 children.	Do.
"	"	Michael Rochford, wife, and 6 children.	Do.
"	"	Patrick Laydon, wife, and 4 children.	Do.
"	8th March	John Boyce, wife, and 4 children	1, Broad Chare.
"	13th March	Francis Forest, wife, and 3 children.	Dog Bank.
"	"	Thomas Brady, wife, and 1 lodger.	Do.
"	15th March	James Scott, wife, and 3 children	School Yard, Pandon.
"	"	James Smith, wife, and 3 children	Bell's Yard.
"	"	Arthur Conlin, wife, and 4 children.	Do.
"	22d March	John Davies and 1 female lodger	Hall's Yard.
"	"	Bridget Tange and 2 lodgers -	4, Meeting House Lane.
"	"	Michael Brown, wife, and 3 lodgers.	Do.
"	"	Mary Gallagher and 2 daughters	Do.
"	"	James Collins and Ann D. -	7, Meeting House Lane.
"	"	Philip Foy, wife, and 5 children	Do.
"	23d March	Hugh Cunningham, wife, 3 children, and 1 lodger.	Cowgate.
"	"	Sarah Jane Smith and 2 lodgers	16, Wall Knoll.
"	"	Michael Breckins, wife, and 4 children.	Wall Knoll.
"	27th March	Thomas Murray, wife, and 6 children.	Timer's Entry.
"	"	William Watson and Elizabeth T.	Do.
"	"	Bridget O'Hair, John Collins, Bridget Murphy.	Do.
"	"	Margaret C and John Harris -	Do.
"	30th March	Andrew Gaughan, wife, 3 children, 2 lodgers.	Grenville Street.
"	"	John McAvoy, wife, and 4 children.	2, Grenville Street.
"	"	James Mularky, wife, and 5 children.	Do.
"	"	William Pringle, wife, and 3 children.	Do.
"	"	Patrick Garvin, wife, and 5 children.	3, Grenville Street.
"	"	Michael Lynch, wife, and 4 children.	Do.
"	"	Michael Cosgrove, wife, and 3 children.	Do.
"	"	Thomas Barret, wife, and 4 children.	Do.
"	"	Thomas Fleming, wife, and 4 children.	Do.

Year.	Month.	Name and Number of Family.	Residence.
1865	30th March	- Patrick O'Hare and 3 lodgers -	3, Grenville Street.
"	"	- Bridget Kelly and 4 sons -	Do.
"	"	- Thomas Henratty, wife, and 4 children.	5, Grenville Street.
"	"	- Peter Smith, wife, and 5 children	Do.
"	"	- Thomas Collins, wife, and 2 lodgers.	Do.
"	"	- John Barret, wife, and 5 children	Do.
"	"	- Charles Mulvey, wife, and 2 lodgers.	8, Grenville Street.
"	"	- Bridget McVey and 3 sons -	9, Grenville Street.
"	"	- Patrick Forbs, wife, and 3 sons -	Do.
"	"	- Thomas Burns, wife, and 5 children.	Bedford Street.
"	22d April	- Thomas Quin, wife, and 4 children.	Egypt Square.
"	"	- Richard Collins, wife, and 6 children.	Do.
"	"	- Mary Taylor, 2 children, and 3 lodgers.	Do.
"	25th April	- Elizabeth Bell and 3 lodgers -	Cowgate.
"	"	- Hannah Little and 3 lodgers -	Travellers Entry.
"	"	- Thomas Richardson, wife, and 2 lodgers.	Do.
"	"	- Elizabeth R. and William Linton	Bake House Entry.
"	28th April	- Mary Wood, 2 children, and 8 lodgers.	Do.
"	"	- Martin Welsh, wife, and 5 children.	Double Entry.
"	6th May	- Christiana McKinzie and 2 lodgers.	Bake House Entry.
"	15th May	- Bridget Hughs, son, and 2 lodgers	Anchor Bank.
"	"	- George Anderson, wife, and 6 children.	Downie's Entry.
"	"	- Patrick McLaughlan, wife, and 4 daughters.	Do.
"	"	- Martin Conway, wife, and 2 lodgers.	Dark Entry.
"	"	- John Riley, wife, and 6 children	Wide Open.
"	"	- Benjamin Downing, wife, and 5 children.	Do.
"	"	- Charles Craigg, wife, and 3 children.	Pandon Street.
"	"	- Owen Cox, wife, and 5 children -	19, Pandon Street.
"	20th May	- John Hughs and 2 female lodgers	Hall Yard.
"	"	- William Mason and Elizabeth B.	Silver Street.
"	"	- John Butler, wife, and 2 male lodgers.	Do.
"	"	- Morty Flyn, wife, and 5 children	Allison's Yard.
"	25th May	- Patrick Giblin, wife, and 2 lodgers.	Akinside Hill.
"	"	- Susan Anderson and 2 lodgers -	Do.
"	"	- Henry Braley, wife, and 2 lodgers	Dog Bank.
"	29th May	- John Flannighan, wife, and 2 lodgers.	St. James Court.
"	31st May	- Edmond Fish, wife, and 2 lodgers	Pandon.
"	"	- John Knox and Catherine R. -	Bake House Yard.
"	"	- Mary Cassidy, daughter, and 2 male lodgers.	Do.
"	"	- Rose O'Harra and 3 lodgers -	Akinside Hill.
"	1st June	- Ellin McMillan and 4 children -	Pilgrim Street.
"	2d June	- Isabella M. and Thomas Welsh -	High Bridge.
"	"	- John Crystle, wife, and 6 children.	Do.

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NEWCASTLE.	1865	3d June	Robert Loxley, wife, and 2 brothers.	Stock Bridge.
		5th June	John Tweddell, wife, and 4 lodgers.	Pilgrim Street.
		6th June	Patrick Lynch, wife, and 4 children.	Croft Stairs.
			Patrick Morgan, wife, and 6 children.	10, Croft Stairs.
			William McKenna, wife, 3 children, and 4 lodgers.	11, Croft Stairs.
		9th June	Mary Ann McKay and 4 children	Cellars Entry.
		17th June	Elizabeth Millar and 6 lodgers -	Wall Knoll.
			Mary Myers and 2 female lodgers	Do.
		20th June	William Duck, wife, and 2 lodgers	Church Walk.
			Mary Lee and 4 lodgers -	Do.
			Peter Fox, wife, and 4 children -	Grey's Yard.
		5th July	William Hedley and 2 lodgers -	Ormston's Yard.
			Thomas Carly, wife, and 4 children.	Do.
			Mary McKelvie and 5 lodgers -	Manor Chare.
		10th July	John Murphy and 4 children -	Meeting House Lane.
			Michael Quin, wife, 2 children, and 2 lodgers.	Do.
			John Mullen, wife, and 2 lodgers	Do.
			John Coleman and Ann H. -	Do.
			Bridget Tange and 6 lodgers -	Do.
			William Robson and Mary G. -	25, Silver Street.
			James Donkin, wife, and 2 lodgers.	Do.
			Patrick McKay, wife, and 3 children.	Do.
			Felix Lemon, wife, and 3 children	Do.
			Jane Wilson and 2 lodgers -	Double Entry.
			John Airley, wife, 7 children -	6, Silver Street.
			James Campbell, wife, 3 children, and 3 lodgers.	Do.
			John McShane, wife, 3 children	4, Silver Street.
		14th July	John Butler, wife, and 2 lodgers	Stock Bridge.
		15th July	Margaret Hays and 2 children and 2 lodgers.	20, Low Bridge.
			Robert Wilson, wife, and 2 lodgers	Do.
		25th July	Michael Skelly, wife, 5 children -	Factory Yard.
			James McCredy, wife, 3 children, 2 lodgers.	Do.
			Cornelius Malcomb, wife, 5 children, 3 lodgers.	Wall Knoll.
			James McWilliams, wife, and 2 lodgers.	Do.
		26th July	James Douggan, wife, 1 child, father, and mother.	Ormston's Yard.
			Winfrid Devaney and 2 brothers, and 4 lodgers.	Egypt Square.
			Lucke Carr, wife, and 4 lodgers -	Do.
			James Moran, wife, and 6 children	Do.
			John Battles, wife, and 3 children	Do.
			Patrick McLaughlan and wife, 3 children.	Do.
			Thomas Mullen, wife, and 3 children.	Do.
			Martin Carrol, wife, and 3 children.	Do.
			Charles John Reed and 2 lodgers	Swirl.
		28th July	Daniel Goodwin, wife, and 4 children.	Dog Bank.

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1865	28th July -	John Thompson, wife, and 3 children.	Dog Bank.
"	" -	John McLawrence, wife, and 3 children.	Do.
"	5th August -	Elizabeth Teel and 4 children -	Pilgrim Street.
"	10th August -	Francis Duffy, wife, and 4 children.	58, St. Ann's Street.
"	" -	Hopper Longstaff, wife, and 4 children.	Sandgate.
"	11th August -	Patrick Lynch, wife, 5 children -	High Yard.
"	23d August -	Charles Graham, wife, and 5 children.	Silver Street.
"	" -	Owen McKenna, wife, and 2 lodgers.	Double Entry.
"	2d September	Thomas Hunt, wife, 2 children, and 5 lodgers.	Sandgate.

## In the B and C divisions.

Year.	Month.	Name and Number of Family.	Residence.
1865	5th January -	Ann Mooney, 1 child, and 1 lodger	Last Makers.
"	" -	John Kelly, wife, and 4 children	Entry Side.
"	" -	Thomas McCail, wife, and 2 children, and John McGillon and Ann Graham, lodgers.	Do.
"	" -	Patrick Mackey, wife, and 3 children, and 2 lodgers.	Do.
"	9th January -	John Knox and Catherine R. -	Tuthill Stairs.
"	18th January	George Allen, wife, and 4 children	10, Queen Street.
"	" -	Patrick Duffy, wife, 3 children, and 1 lodger.	Do.
"	30th January	Henry McKlusky, wife, 7 children, 1 lodger.	Side.
"	1st February	James O'Neil & Son and 2 lodgers	19, Marlborough Street.
"	" -	Thomas Gill, wife, daughter, 2 male lodgers.	Place.
"	" -	George Lamb, wife, and 5 children.	Fenkle Street.
"	" -	William Lamb, wife, and 2 lodgers.	Do.
"	" -	John McEwen and 2 female lodgers.	Do.
"	" -	Johanna Grey and 2 sons and 1 lodger.	Do.
"	11th February	Louise Harrison and 7 lodgers -	24, Prudhoe Street.
"	15th February	Ann Reay, 1 male and 2 female lodgers.	2, Rosemary Lane.
"	" -	Thomas Young, wife, and 4 children.	Do.
"	" -	Ellen Kelly and 2 sons and 2 lodgers.	Do.
"	" -	Mary Ann Butler and 3 children and 2 lodgers.	Do.
"	17th February	Ann Henry, 6 children, and 2 lodgers.	5, Long Stairs.
"	" -	Jane Dockerty and Patrick Herron and Jane Brown.	29, Sheep Head Alley.
"	" -	Hugh McGowan, wife, and 3 children.	Do.

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No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.	Year.	Month.	Name and Number of Family.	Residence.
NEWCASTLE.	1865	17th February	Robert Atkin, John Mass, and Sarah Robson.	29, Sheep Head Alley.
			John Bryant, wife, and 4 children	Do.
			Isabella Murphy, 1 child, and 1 lodger.	Do.
			Catherine Brown and Mary Ann W.	Do.
			Henry Brown, wife, and 2 sons -	Do.
		23d February	Andrew Gallagher, wife, and 2 lodgers.	Jones Entry.
			Mary Ann McLaughlan and 2 lodgers.	Do.
			Margaret McKenna and 5 lodgers	Grove's Entry.
		4th March	Elizabeth Herrington and 2 lodgers.	St. John's Place.
		13th March	James Carley, wife, and 6 children.	Rosemary Terrace.
			Francis McNane, wife, and 4 children.	Do.
			Arthur McGarr, wife, and 1 lodger.	Do.
			Martha Hewett and 5 children -	Do.
		29th March	Sarah McCloud and Elizabeth Duck.	6, Long Stairs.
			Mary Ann Gardner - - -	Do.
			Michael Brown, wife, and 6 children.	Do.
			Peter Henry, wife, and 2 children.	9, Long Stairs.
			Robert Gordon, wife, and Harriet Lawson.	Do.
			William Fletcher, wife, and mother, and Elizabeth Rochester and 4 children.	Vickers Entry, Side.
			Michael Ferguson, wife, and 4 children.	Do.
			Joseph Hanley and Marth H. -	2, Rosemary Lane.
			Richard Shillinglaw, wife, and 6 daughters, and 3 male lodgers.	22, Pudding Chare.
			Thomas Johnston, wife, and 3 children.	38, Pudding Chare.
		21st April	Mary Cullen and 3 sons - -	4, Westgate Street.
			Esther Carron and 4 children -	2, Westgate Street.
			John Burk, wife, and 2 lodgers -	1, Baliffgate.
		5th May	Mary McGuire and 2 lodgers -	Black Gate.
			John Derwine, wife, and 2 lodgers	Do.
		8th May	Owen Kelly, wife, and 3 children, and 4 lodgers.	Do.
			Francis Kelly, wife, 3 children, and 3 lodgers.	Do.
			Patrick Carr, wife, and 4 lodgers	Do.
			Peter Dobbs, wife, 5 children, and 2 lodgers.	Do.
		25th May	John Rogers, wife, and 3 lodgers	Denton Chare.
		2d June	Mary Simpson and 4 lodgers -	38, Low Friar Street.
		3d June	Elizabeth Batty and 2 lodgers -	2, Rosemary Lane.
		8th June	William Finney and 4 lodgers -	Forth Banks.
		19th June	Thomas Brady, wife, and 3 lodgers.	Low Friar Street.
			Peter McCabe, wife, and 3 lodgers	Monk Square.
			Rosannah McInally and 4 lodgers	Do.
			Hugh McLawren, wife, 1 lodger	5, Monk Square.
			Peter Quin, wife, and 4 children, and 2 male lodgers.	40, Shields Street.



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NEWCASTLE.

Year.	Month.	Name and Number of Family.	Residence.
1865	7th July	- Michael Keegan, wife, and 3 children.	Irishman's Stairs.
"	10th July	- Edward Curran, wife, and 2 lodgers.	Hanover Square.
"	29th July	- Jane Roy, 4 children, and 2 lodgers.	14, Temple Street.
"	5th August	- Ellen Smith and 2 lodgers	- Westmoreland Lane.
"	"	- Margaret Middlemiss and 2 lodgers.	- Do.
"	21st August	- Patrick Murphy, wife, and 2 children, and 2 female lodgers.	10, Queen Street.

There are 140 more of these visits reported which are omitted here in order to curtail the list.

At Gateshead the chief constable is the appointed inspector of common lodgings, and his duty is done both in person and through the help of two detectives who work on alternate weeks. Only seven houses are licensed, but these are rather large, accommodate 208 persons, and are kept well in hand by the inspectors. Visits are made every night, and a regular return sent into the police office of the number of persons found in each house. For instance, on the 23d of August 101 males and 31 females were reported. There is not now room in the workhouse vagrant ward for all who apply, and consequently the police issue tickets for a night's lodging in a registered house. The prescribed area was 250 feet. The houses were visited. Riley took, with comfort, 24 persons at 3d.; Maclaren, 44, all men. This was a well-managed house, the rent only 16l. Taylor's (35) was a ruinous house, but with good beds. Tribble's (55) was the house patronized by the police; it was a good house with good beds. A bucket was used and excused, as at Newcastle. The owner said he had had occasional difficulty in moving the sick. Where overcrowding is met with in unregistered houses, the crowd is usually scattered, on being warned, but on September 4, 1863, a man was fined under section 29 of the Nuisances Removal Act. At Gateshead (as indeed nearly everywhere) there was want of room. A few streets were visited. In Grosvenor Street 3s. a week was paid for two kitchens in a basement. A back kitchen was let to a pair with four children for 1s. 6d., while the front was let for 1s. 9d., to two families, counting two men, a woman, and eight children. This kitchen measured 18 feet by 14.5 by 7.5. In Victoria Street kitchens, usually sunk a few steps, were let at 1s. 3d., 1s. 6d., or 1s. 9d. a week, in one instance accommodating a very tidy pair with seven children, in another a mother with four, and in another two women with two children. Cellars of the sorts proscribed by law were not seen in Gateshead.

GATESHEAD.

## NEWPORT (MONMOUTH).

The towns of Monmouthshire and Glamorganshire contain a large proportion of houses built since the adoption of the Local Government Act, and therefore of a better character than if old. The administration of the health acts varies much in its efficiency, and in many streets the inhabitants, whether Welsh or Irish, do not appreciate the conveniences which modern improvement has given them.

Newport  
(MONMOUTH)

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NEWPORT  
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Newport has a board of health in the corporation, under whom an officer of police, Henry Williams, is appointed inspector of nuisances and of common lodgings. He reports fortnightly to the committee of the board. The board has also appointed Dr. Davies as officer of health, and he visits both nuisances and common lodgings. Dr. Davies gives medical attendance to the police, and attends to the ordinary duties, very much to the satisfaction of the authorities. He is paid 50*l.* a year. Nearly all Newport is drained, so that there are no houses rendered uninhabitable through the existence of privy receptacles; nor are there any cellar bedrooms left. Before the judgment in the case of *Burgess v. Peacock*, the board caused the shutting up of some dilapidated houses under the ordinary byelaw, and more lately, some back kitchens having been detached from their houses, and let as separate tenements, the medical officer induced the proprietor to turn out the tenants, and return the kitchens to their original destination. There are no stables or sheds now inhabited. Houses have not here been temporarily closed for cleaning or for overcrowding. The scarcity of houses is very bad; there is hardly an empty house in the town, though the population, being rich, can pay high rents. The corporation has land on which stand some poor old rows of houses, and as the leases expire the corporation pulls them down. Much space has already been obtained in this way. The corporation lends brushes and lime for cleaning, freely to all.

Common  
lodgings.

The present inspector when first appointed found a quantity of small unfit houses on the list of common lodgings, and these he has, with the consent of the medical officer, and gradually as changes of tenancy occurred, removed from the list. Thirty or forty have thus been got rid of, and the licence has been renewed to a new tenant only once. This a good measure, only on condition that all the crowded poor are looked after. Where there is no medical officer, the inspectors object should be to get as many houses under control as common lodgings as he can. There are now open 12 houses, with an average of 20 lodgers each. There is no sailors' home here. The only public institution for lodgers is the House of Refuge, which is really a vagrant ward, to which the police have power to send poor people.

To discover common lodgings, and to find out overcrowding, the inspector pays nightly visits once a week, and formerly some convictions for overcrowding took place on his evidence. The offenders were however merely cautioned, and mulcted of costs. All such cases are difficult of prosecution, for here prevails the notion that a *weekly tenancy exempts* a lodger from the operation of the Common Lodgings Act. To remove this impression, the clerk has now obtained the opinion circulated by the General Board of Health in 1853, and proposes in future to press the cases, irrespective of term of tenancy. No resistance to inspection had been experienced, the poor here not knowing their power, or having confidence in the medical officer that he would not abuse inspection. Still the doctor did not feel quite easy about his position in this matter, and was anxious for a statute going directly to the object desired. The space to each lodger was not laid down by byelaw, and the custom existed of allowing 250 feet, but subject to the inspector's discretion. Selby's house for 40 persons, Barley's for 17, and Podestas' for about 60, were good houses; Anthony's was better, and had 9 fourpenny lodgers; most of the others were Irish and decent. The walls were all limewashed, and the windows opened. The only fault was a custom of taking baggage upstairs.

Some private houses also were visited; one in Friarsfield was unilocular, the outside measurement being 11 feet 10 by 11 feet 6.

It was the sublet back outhouse of a house of 2 kitchens and a bedroom. The rent of the whole was 2s.; but the poor woman with 4 children who inhabited the outhouse paid 1s. a week for her share. Other houses, of one kitchen and one bedroom, let at weekly rents from 1s. 6d. to 2s. 1d., and measuring within about 12 feet by 12, held families of 4 adults with 5 children, of 5 adults, of 5 adults, and of 4 adults respectively. A house of 5 rooms let to 3 families gave this population: A. 2 rooms 2 adults with 5 children, paying 2s. 9d. B. 2 rooms, 2 adults with 3, paying 2s. 7d. C. 1 room, 2 adults, paying 1s.

No great proportion of the town is let in single rooms; two rooms at a time is, however, a common tenement in the worse parts. Formerly single rooms were common, and in one instance before a prosecution had caused reformation 60 persons had lived in one house.

The want of closet accommodation is no longer felt here; but Dr. Davies told me he remembered it as a great evil, and knew it now to be productive of much disease in Welsh towns, where he said the enforced constipation and re-absorption of fæces was a well-known disease.\* In the Welsh schools the use of the sitting-closet has been made a subject of instruction; but when the uniform disinclination which the Welsh, the French, the Scotch, and the Irish have for our system of resting the body while discharging the fæces is considered, one might be disposed to think that some little variety of bony structure may make the squatting position most natural to their races.

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## NORWICH.

The corporation of Norwich as a board of health has the local authority in that city, and has, besides a clerk and surveyor, the services of Mr. Clarke as inspector of nuisances and common lodgings. Mr. Clarke deals with overcrowding and the use of unfit dwellings almost solely through the means supplied by the Common Lodgings Acts, there having been no prosecution under the 29th section of the Nuisances Removal Act. The Common Lodgings Acts are carried out by means of night visits and a well kept register. The result was that the six houses on the register were more than usually good and especially well cleaned and ventilated. But the smallness of the number diminished the value of the services bestowed on them, and the principal reason of the small number was not satisfactory. The explanation is, that besides beerhouses there are more than 600 licensed public-houses in Norwich. These, in consequence of their number, are of necessity mostly poor, and in nearly all their windows one sees lodgings advertised, for which only threepence is charged. The six registered houses are indeed public-houses, and only voluntarily submit to the registry and control, so that in reality there is not a single

NORWICH.

\* I extract from a letter of Dr. Davies:—

“Undue and prolonged retention of fæces, brought about through enforced habits of constipation, and occurring in women only, is a recognized complaint in those districts. Females suffering from this semi-paralyzed condition of the bowels have a peculiarly dirty sallow complexion, flabby coated tongue, and the breath is exceedingly offensive, having quite a fæcal odour.

“Rows of cottages in some instances have no privy accommodation. In others there may be two or three provided for a row of houses 30 or 40 in number; but, far from any attempt at privacy being made, these privies are mostly stuck like sentry boxes on the open plain in front of the cottages.

“I have heard decent women complain so often of the sufferings both in mind and body they have had to endure through the want of common conveniences, and the disgusting disregard of privacy, that I feel compelled to write strongly on the matter . . . .”



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common lodging in Norwich. This immunity of the licensed public-houses is a weakness in the Common Lodgings Acts, the framers of which could never have expected to find a town so loaded with poor victuallers as to have even its common lodgings undersold. Another reason was sometimes alleged for the small number of houses; this was that Norwich was not a thoroughfare, and not being in itself worth much for their purposes was not favoured with the visits of the regular tramp population, and for this reason the union vagrant ward was not over filled. The custom did not prevail of receiving lodgers in workmen's families, though of course there were instances. The only reported crowding was in the form of houses let in single-room tenements, with or without a resident landlord, and in this sort of accommodation there were thousands of families. These small tenements do not usually receive lodgers; and as the authorities decline to deal with the whole as a single overcrowded house, there is really no power efficient to abate overcrowding, except by consent. The rents of single rooms were so low as from 6*d.* to 1*s.*, and if furnished were 1*s.* 6*d.* or 1*s.* 9*d.* No overcrowding was found on a visit. Indeed there seemed to be few large families about.\* The inspector had obtained the closing of a few smoky unfit unilocular cots until they were made better; he had also succeeded in obtaining the erection of privies. He was desirous of inducing the corporation to add to the accommodation on some property under the walls, where 12 families and two houses to be let were supplied with two closets only.

## NOTTINGHAM.

NOTTINGHAM.

The old town of Nottingham† stood on a small and irregular surface, artificially circumscribed by the existence of certain common rights of pasture over nearly all the lands around the town, which rights interfered to prevent any additional ground being let or sold for building. When the town, through the natural growth which followed good trade, had got so full of people it would hold no more, and high rents and bad accommodation repelled all immigration, the surrounding villages outside the belt

\* Population in 1861.

Above 35 years.

NORWICH	-	74,891	-	-	25,769
NOTTINGHAM	-	74,693	-	-	22,949

The following table is a Return of Persons sleeping in 29 houses let out as ready furnished rooms on the night of November 14th, 1865, made by order of Mr. Hitchman, the Chief Constable:—

Name of Landlord.	Situation.	No. of Houses.	No. of Rooms.	Occupiers.		Remarks.
				Male.	Female.	
Mrs. Francis	St. John's Head Yard	5	11	10	15	2 rooms unoccupied.
Mr. Cogman	St. John's Head Yard	2	7	7	7	
Mr. Coman	St. Miles Church St.	1	2	2	2	1 room unoccupied. 1 room unoccupied. 6 rooms unoccupied.
Mr. Plumstead	St. Miles St.	1	10	11	12	
Mr. Meadows	St. Miles St.	1	5	6	5	
Mr. Dawson	St. Miles	5	15	14	15	
Mr. Wines	St. Miles Church Alley	5	25	24	19	
Mr. Finch	Magpie Road	1	3	3	5	
Mr. Hayward	Pockthorpe	5	10	9	9	
Mr. Gardiner	Pockthorpe	3	11	8	13	
Total	-	29	99	94	102	10

† An interesting account of Nottingham by Dr. Greenhow is to be found in the Second Report of the Medical Officer of the Privy Council, 1859.

of common land grew up into considerable towns, while the old town seemed about to sink into a mere inferior dependency on its new neighbours.

At this crisis, in the year 1845, an Act of Parliament was obtained which empowered persons who were so disposed to buy small lots of what had been the reserved land, and to build upon them. The preamble of the Act, 8 and 9 Vict. Cap. 7, recites.

And whereas the population of the said town is very considerable, and would naturally increase, and large and important manufactures are carried on, and would greatly extend therein, but the want of proper habitations and sites for building purposes is now and hath long been felt to be a great disadvantage, and the labouring classes have thereby been necessitated to crowd together in bye lanes and close courts, and to live together in small and inadequate tenements, and to reside in places of abode erected upon impure and improper sites: And whereas the crowding together of the labouring classes in manner aforesaid is extremely prejudicial to the comfort, education, and morals of such persons, and is subversive of social decency, productive of disease, mortality, and destitution, and greatly injurious to the general health and well-being of the inhabitants of the said town: And whereas the ratio of mortality in the said town is exceedingly great, and is strongly marked in those districts where due attention to light, ventilation, and drainage hath not been observed, and where the poorer classes are most densely crowded together, and it hath been found that the drainage of houses is frequently so imperfect as to endanger the health of the inhabitants, and that in many places, by reason of the narrowness of streets, lanes, courts, and alleys, the due ventilation of crowded neighbourhoods is often obstructed or impeded, and that many buildings and parts of buildings unfit for dwellings are used and occupied, whereby disease is engendered, fostered, and propagated.

The following clauses show how strictly building regulations were laid down.

CXXIV. And for the purpose of insuring the admission of light and fresh air to and amongst the buildings which may be hereafter erected within the limits of this act, and for the purpose of preventing the unhealthy and inconvenient overcrowding of the dwellings of the poor, and for the purpose of securing due accommodation and privacy, be it enacted, That no dwelling house shall adjoin any other dwelling house or other building (except an outhouse ordinarily occupied with such dwelling house) on more than two sides, and that every dwelling house shall be provided with an attached yard or garden (separate and distinct from any other yard or garden) to extend at the least to a distance of thirty feet from such dwelling house, or so much on each of the two opposite or adjacent sides of such dwelling house as shall together extend at the least to thirty feet, and that every dwelling house shall have within its own curtilage or garden a separate privy or watercloset and dustpit.

CXXV. And in order to provide for the greater convenience, and for the more decent separation of the sexes, and for the improvement and preservation of the moral and social condition of the population, be it enacted, That every dwelling house shall be constructed with and possess at least three distinct bedrooms above the ground the floor thereof, each with a fireplace or sufficient ventilating flue and window thereto, and a ceiling, of which a part at least equal to two thirds of the area of the floor shall be horizontal, and not less than six feet and six inches high above the floor, and that no apartment any part of which shall be situated below the level of the ground, or which shall not contain a proper fireplace and chimney, or ventilating flue and window, shall be let off, or be used, occupied, or be suffered to be used or occupied as a workshop or sleeping apartment, or be slept in, or be suffered to be slept in.

CXXVI. And for the purpose of insuring the salubrity of the air in and about such dwellings, and in and about workshops, warehouses, and other buildings in which the labouring population are occupied or employed, be it enacted, That no watercloset without a trapped soilpan, and a sufficient supply of water to cleanse the same, privy, ashpit, stable, cowhouse, piggery, or other building from which any noxious stench or effluvia can or may arise or escape, shall be erected or used within fifteen feet from any living room, bedchamber,

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Old town  
described.

Back-to-backs  
forbidden.

Every house  
to have three  
bedrooms.

No privy to be  
within 15 feet  
of a building.



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workshop, warehouse, or other apartment or building in which human beings shall dwell, or in which they may by the nature of their employments be necessitated to remain during their usual hours of labour; and every such apartment or building in which there shall not be an open chimney and fireplace capable of being used shall be constructed with a ventilating shaft or flue extending from or near the ceiling to and through the roof, and the area of such ventilating shaft or flue shall be at least one eighth of a square inch for every square foot of surface in the floor of such apartment or building.

Cellars were dealt with thus :—

CXXIX. And be it enacted, that every apartment (except store cellars) any part of which shall be below the surface of the ground shall have an area extending along each side which would otherwise be in contact with earth, and the width of such area shall be at least equal to the depth of such apartment below the surface of the footpath or causeway adjacent if such footpath or causeway be within ten yards thereof, or below the surface of the ground if such footpath or causeway be ten or more yards therefrom; and such apartment and the area thereto shall be properly and effectually paved and drained.

CXXX. And for the purpose of discouraging and prohibiting the use of buildings unfit for dwellings, and the improper appropriation of buildings, and for the purpose of diminishing the evils arising from the production, introduction, and communication of disease, and for the better security of the morals of the population, be it enacted, That every person shall be liable to a penalty of twenty shillings for every day that he shall act contrary to any of the following provisions; (that is to say,) every person who shall let separately to hire, or suffer to be occupied as a dwelling, any underground room or cellar, or any room any portion of the floor of which shall be below the level of the causeway or footpath of any public road if within ten yards thereof, or below the level of the adjacent ground if ten yards or more from the causeway or footpath of any such public road; every person who shall let or hire, or suffer to be occupied, any such room or cellar (separate from a dwelling house erected over or adjoining such room or cellar) for any purpose except for a ware room or store room; every person who shall let or suffer to be occupied, or use or appropriate, any dwelling house, as and for a lodging house for the reception of accustomed tramps and vagrants; every person who shall subdivide any dwelling or other building into separate apartments, approached by a common stair or entrance in the way and manner of a barrack building, and shall let or suffer to be occupied any dwelling or other building, or any part thereof, in such way and manner.

North country  
and Scotch  
system for-  
bidden.

The following section is remarkable, and the question whether the word nuisance here has the meaning which has been attached to the words in later Acts seems of much importance.

CLI. And for the purpose of more effectually enforcing the observance of the provisions of this act with regard to any buildings, walls, drains, sewers, roads, or ways, or other things, which shall be hereafter built, made, formed, or altered, contrary to the provisions hereof, be it enacted, That if the same be not built, made, formed, or altered in the manner and according to and in conformity with this Act, and if any person build or begin to build, or cause the building or beginning to build, or alter or cause to be altered, or make or form, or cause to be made or formed, or use or cause to be used, any part of any ground or building, drain, sewer, road, or way, or other thing, contrary to the provisions in this act contained, and if in any of such cases it so appear by the certificate of the official referee, then the said building, wall, drain, sewer, road, way, or other thing, or such part thereof so irregularly built or begun to be built, or so irregularly altered or begun to be altered, or so formed or made, or begun to be formed or made, or so used, shall be deemed a nuisance.

New suburb.

The result has been that at the end of only 20 years a town nearly as large as the old Nottingham has been built on a plan under which an unfit house could not be erected.\* It will be observed that the

\* Unfit; that is in plan. Scamped work is found in Nottingham, and in October 1865 a singular accident happened at a house in Napoleon Cottages, Northumberland Street. The house is occupied by a working man, and at about four o'clock one of his children, a little girl eight years old was in the kitchen with another child, when the



Nottingham Act is stricter in its demands than are any byelaws under the Local Government Act, and that cause, together with the good price (about 3s. a yard which the new land fetched) might have been expected to have entailed high rents, and houses crowded with lodgers, but such is not the case. Among Nottingham families, it is usual for the adolescent daughters to be employed in the lace and hosiery manufactures, in which they gain good wages for delicate handiwork. These girls remain with their parents at home until they have married and have a small family, when they move off, and seldom continue to work. Thus the income spent in a working man's house is large, and the producers demand good bedroom accommodation. The rent of houses is remarkably low. So many were built at once that the builders have to accept very small returns. Houses which, when first built, were let at 4s. 10d., may now be had at 3s. 6d. a week. Some such were visited. A porched door led into a passage from which a door at the side led into a parlour, 12 feet by 12, and 9 feet high, over which, with the passage, was an excellent bedroom, 15 feet by 12. Behind were the kitchen and staircase, and also a scullery, with two more bedrooms upstairs. Each house had a watercloset and tidy yard. The operation of the Small Tenement Rating Act had led to a reduction of rents, landlords having brought the rents down in order to be within the terms most favourable for compounding.

The old town still remained. The restrictions of previous ages had caused every available yard of land to be built on, and people had thronged every habitable cellar. The Local Board of Health, when created, adopted no building byelaw, because there was no surface to build on, but have from time to time made many judicious improvements in the town. First, they have pierced the crowded mass of houses by new streets, which were rendered necessary by the new form of the town. Then they have from time to time closed cellar bedrooms which did not conform to the Act. Nottingham cellar bedrooms are now chiefly to be found in Tyler Street, Coldham Street, and Currant Street. All of those which were seen were let at about 1s. a week to small families. All had areas, but in other respects they did not always conform to the requirements of the General Acts, not always having an underdrain, nor in every instance being seven feet high. Two beds were often seen in such places, and families were owned to of four children and their parents. The class of people who prefer a cellar at a low rent to any accommodation whatever which will cost more are to be found here as elsewhere, but here they have little excuse, for in consequence of the great new supply in the outskirts, the old town is no longer even ordinarily full, and though rents are very low indeed, many of the meanest class of houses stand to be let. A change in the mode of the hosiery manufacture, rendered possible in Nottingham by the Act of 1845, has been a principal benefit derived from that wise measure. Room has been found for the erection of great mills, and the stockingers who used to work in the top room, a third or fourth storey of a cottage-house, now go from home to work. This change has set the top storey at liberty, and it now forms a third bedroom in a great number of the cottage houses of the old town. Large old houses of four bedrooms and a kitchen were let at 3s. 3d., rates included, in Currant Street. In Albert Place, houses of three bedrooms and a kitchen, quite clean and

brick floor suddenly fell into the cellar beneath, a depth of seven or eight feet. Both the children fell with the floor, and also a table and other articles of furniture, the little girl was all but buried in the débris. Napoleon cottages have not been erected more than one or two years, and the cause of the floor falling in was attributed to the faulty way in which the builder did his work.

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Old town.

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## NOTTINGHAM.

decent, stood to be let at 2s. 2d., and when with an additional bedroom at 2s. 4d. In worse built parts a house with one bedroom, the rent 1s. 1d., measured internally only 9 feet by 7 feet 6. Others let at 1s. 9d. had two bedrooms, and contained families of three, four, or five persons, but no more. Very few lodgers were heard of anywhere, and large families were only found where there was large accommodation.

For about 19 years it has been the practice of the corporation to obtain the removal of houses or parts of houses here and there throughout the town, in order to admit light and air to crowded neighbourhoods, and indeed to practise on a small scale the powers which have been by special Act lately conferred on the Liverpool corporation. With this view proprietors have been called on to erect privies where they had reserved no land for the purpose, and have by a little compulsion of this sort been induced, for the gift of a small sum of money (the highest instance was 200l.), to improve the remainder of their property and the health of the whole town, by the extraction of a house or two which might cork up the end of a yard, or even by the destruction of one of two rows which stood too close together. There is no byelaw directed against unfit old houses, but there has been much of very efficient action. About 12 houses remain unfit for inhabitation, but not nuisances within the meaning of the 13th section of the Nuisances Removal Act. The worst instance is in Ripon's Court, where is a close cluster of unilocular huts, let at 1s., 9d., and 6d. a week, and measuring about 9 feet by 9. The pavements are sunk below the outside level, the privy so difficult to get at as to be choked, while houses round about them stand 3 or 4 feet apart to the height of three storeys. Another bad instance is St. Ann's Alley, which measures but 6 feet across, and where squalid rows of houses, let at 1s. 6d. a week, contained only a kitchen and bedroom, each measuring 9 feet by 9, by 7 feet 6 high. Privies under bedrooms are said to be now unknown, the inspector, who is an excellent officer, and who seems to have the support of the magistrates, having waged war with them for years. There is no medical officer. The administration of the Common Lodgings Act is entrusted to Mr. Richards, the inspector of nuisances, and is peculiar in some respects. The bedroom tickets declare the sex of the lodgers to be received, and whether they are married or not. The licence also is peculiar in being annual. The area of floor prescribed is superficial, and is not measured, but judged, having regard to special circumstances. The only mode of bringing new houses on the register was by receiving the informations of neighbours, and consulting the police. The number was 34, accommodating 467 persons. There were no recent entries on the register. The only definition laid down depended on the *temporary, casual, character* of the lodgers. With the following remarkable exceptions, the common lodging houses were of ordinary character. In Narrow Marsh the street runs along the front of a rock face, between which and the street, is a strip of land, perhaps 18 feet in depth. Here, in a row, built with fronts to the street, and backs built up against the rock face, stand six common lodging houses, three storeys high, each receiving about 26 lodgers, yet not having a back opening nor a yard into which to put dirty pots and clouts. The rent of each was 7s. a week. Above them, accessible from the high level of the back at the top of the rock, stood a warehouse yet five storeys more, eight storeys in all. The houses were supplied with in-door water-closets, had five large rooms and concrete floors, but through having no yard were quite unfit, it is submitted, for the purpose to which they were put.

Common  
lodgings.

The reports of the sanitary committee of the corporation are singularly interesting, and contain precedents for action highly necessary, but seldom resorted to in any towns. For instance, the report for 1855 contains this passage :—

“ Your committee further observed that Foundry Yard, which is densely inhabited, and only approached by a narrow passage at one end, and by a covered entrance at the other, and considering that an opening for the admission of fresh air would be of great benefit to the locality, agreed with the owners for the removal of one house at the south end, and parts of two houses at the north end; the owner has also repaired the houses, and repaired the yard, and the improvements effected are admitted now to be of the greatest utility to the immediate neighbourhood.”

Again in 1860 :—

“ Your committee have paid special attention to the state of Lees Yard in Red Lion Street. This yard contains 70 dwellings, inhabited by a large population, many of whom appear to be in much poverty. The sanitary arrangements, with respect to water supply, privy accommodation, drainage, and pavement, were previously very defective. The peculiar position of the property, combined with the want of sanitary powers prior to the adoption of the Local Government Act, prevented the application of those effectual remedial measures which are now being carried out. The water supply has been improved, the sewerage amended, seventeen new privies and two ash-pits have been built, the entire surface of the yard is now being paved with Ilkeston bricks, and your committee hope to be able to make arrangements for removing some of the buildings in this yard, so as to afford more light and ventilation to the residents.”

In 1852 the report says—

“ In Thurman’s Yard, Castle Gate, Sherwood Lane, Pump Street, Dakin’s Yard, Cavendish Street, Chapel Yard, Cur Lane, Nelson Street, Holland Street, Maltmill Lane, Wood Court, Province Court, and Mechanics’ Square, dwelling rooms have been removed from over privies.

Twenty-one cellar dwellings have ceased to be occupied, and have been added to the houses above them.”

The annexed forms explain the peculiarities in the administration of the Common Lodgings Act which have been mentioned above :

#### TOWN OF NOTTINGHAM.

##### Common Lodging Houses Acts, 1851 & 1853.

I, William Richards, being a duly appointed officer of the town council of the borough of Nottingham, for the inspection of lodging houses situate within the said borough, do hereby give you notice, that you, being the keeper of a common lodging house in the said borough, must attend at my office, Saint Peter’s Church Side, on the \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_ o’clock in the forenoon; at which time and place the Sanitary Committee will attend, for the purpose of renewing the licences of lodging-house keepers for the term of one year.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ one thousand eight hundred and \_\_\_\_\_

WM. RICHARDS,  
Inspector of Common Lodging Houses.

To Mr. \_\_\_\_\_,  
Lodging-house Keeper,  
Nottingham.

Registered Lodging House, No. \_\_\_\_\_  
Room No. \_\_\_\_\_

#### FOR SINGLE WOMEN ONLY.

Registered to accommodate \_\_\_\_\_ Lodgers.

W. RICHARDS,  
Inspector of Lodging Houses.

APPENDIX.

No. 2.

On the

*Housing of the  
Poor in Towns,*  
by Dr. Hunter

NOTTINGHAM



## APPENDIX.

No. 2.  
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The subjoined table is obtained through the courtesy of Mr. Superintendent Raynor. The visits were made by night, and the table is supposed to present a fair example of the amount of bedroom accommodation in the poorest parts of Nottingham.

## CROWN COURT, MILLSTONE LANE.

NOTTINGHAM.

No.	Name.	Number of Family.	Number of Lodgers.	Remarks.
1	John Brazill - -	3	—	3 sleeping rooms.
2	Martin Bailey - -	6	2	Ditto.
3	Thomas Kennesley - -	4	2	Ditto.
4	James Glinn - -	4	1	Ditto.
5	Patrick Dognan - -	3	—	Ditto.
6	Patrick Higgins - -	5	—	Ditto.
7	John Holding - -	2	2	Ditto.
8	Dennis White - -	8	—	Ditto.
9	Patrick Smith - -	2	4	Ditto.
10	James Lawrence - -	3	2	Ditto.
11	Sarah Flaiser - -	1	6	Ditto.

## PROVINCE COURT, MILLSTONE LANE.

12	Peter Kirk - -	4	6	3 sleeping rooms.
13	John Moran - -	6	—	Ditto.
14	Edward Cox - -	4	5	Ditto.
15	John Ward - -	2	4	Ditto.

## MILLSTONE PLACE, MILLSTONE LANE.

16	William Cooper - -	6	—	3 sleeping rooms.
17	Joseph Tower - -	4	—	Ditto.
18	Elizabeth Dawson - -	1	7	Ditto.
19	Thomas Smith - -	7	—	Ditto.
20	Cornelius Kelley - -	5	1	Ditto.
21	John Makin - -	5	—	Ditto.
22	James Cockram - -	3	—	Ditto.
23	Thomas Hicking - -	8	6	Ditto.

## PEAR STREET.

24	Nathan Meades - -	7	—	4 sleeping rooms.
25	William Bailey - -	7	3	Ditto.
26	Rosetta Meekley - -	1	4	Ditto.
27	Thomas May - -	8	2	Ditto.
28	Mary Read - -	2	2	Ditto.
29	John Bradley - -	5	6	Ditto.
30	Patrick Nicholson - -	2	2	Ditto.
31	John Brown - -	7	2	Ditto.
32		6	—	A cellar kitchen.
33	Cornelius Foley - -	2	—	4 sleeping rooms.

## CURRANT STREET.

34	John Smith - -	4	2	A cellar kitchen and 1 sleeping room.
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## PLUM STREET.

35	James Richards - -	2	13	6 sleeping rooms.
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## LEES YARD, NARROW MARSH.

APPENDIX.

No.	Name.	Number of Family.	Number of Lodgers.	Remarks.	No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.
36	John O'Conner - -	6	4	2 sleeping rooms, very small.	NOTTINGHAM.
37	Absolam Bickley -	9	—	Ditto.	
38	Thomas Wym - -	5	3	Ditto.	
39	Winfield Dyer - -	5	—	Ditto.	
40	Andrew Dyer - -	6	—	Ditto.	
41	John Parkinson -	5	—	Ditto.	
42	Elizabeth Rothera -	4	—	Ditto.	

## LEEN SIDE.

43	Mary Henson - -	1	8	4 large sleeping rooms.
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## OXFORD AND BANBURY.

OXFORD.

In the two towns visited in Oxfordshire there seemed to be something peculiar in the police arrangements which would not permit of much assistance being afforded by that force in carrying out the clauses of the Nuisances Removal and Common Lodgings Acts on which report was to be made. At Oxford, the University police undertake the ordinary police duties by night, and the City police come on by day.\* There does not seem to be such a regular system of correspondence as could admit of the inspector of common lodgings being a member of either force. The present inspector is the city surveyor, and he deposes the execution of the office to the inspector of nuisances, who gives all his time to the local board at a salary of 24s. a week. The number of registered houses is only five, they are all threepenny houses, and were remarkably clean and tidy. Some of the houses were old and decrepit, but all were in important points far above the average. Haslin kept a registered house for 24, and had by had a non-registered house let in private rooms, and here the contrast between registered cleanliness and unregistered filth and disease was conspicuous. Few keepers had the usual tickets, and some did not know the number they might receive. In these houses and throughout the city the poorer population ebbed and flowed with the term time. The city was visited in the long vacation, and the number of lodgers was few. The workhouse is a mile off, and there is no vagrant ward in the city. There was no delay in removing the sick. The small number of registered houses is in part explained by the existence of a mendicity society, whose lodging house contains 34 beds, and receives eight or ten thousand persons a year; still as there is no search made, and as information was given by a qualified person that many unregistered common lodgings were open, the number five might probably, with a police system applied to the subject, be increased.

There were no cellar bedrooms, indeed the floods would prevent any such plan. There were said to be very few houses let in single rooms, and these were chiefly let furnished. In these rooms, as was

\* There may shortly be a third force, the railway police, when the Great Western dépôt is formed.

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OXFORD.

confidently stated by the officers, few or no instances of more than a single family could be found. Cottages of the poorest class were let at about 2s., and in none was observed any excessive numbers. There had been no prosecutions for over crowding under either Act. The Local Acts of Oxford have just now been set aside, and the Local Government Act adopted. The authorities do not seem to see their way to condemning uninhabitable houses, and are considering what byelaw could be planned for the purpose.

On reference to the annual report for 1864 of the Oxford Mendicity Society, it will be seen that the society does not consider professional tramps and vagrants as the class for whom they provide lodging: these ought to go, it seems, to the workhouse, and very serious evil is anticipated from the removal of the workhouse to a mile distance. The society does not appear to have a good opinion of the Oxford common lodgings, and in recommending itself to the public uses these words: "At the lodging house, to which the beggar *must* go " if you give him money, he *must* endure filth and vice; he *must* be " tempted to drink and smoke instead of taking wholesome food; he " *must* be thrown into the worst company. All the money you can " give will not rid him of these evils."

BANBURY.

Banbury is a continuous town of about 10,000 persons, and here, as at Oxford, there are two bodies of police who have only recently (if at all) undertaken regular correspondence. Just beyond the confines of the town a third police, the Northamptonshire, takes up the duty. The county police of Oxfordshire and the borough police of Banbury divide Banbury town about equally. The inspector of common lodgings and nuisances, who seems a good officer, is not on either force, and has found his action in matters, for instance of diseased meat, where promptness is required, defeated by those apparently inconvenient divisions.

The registered lodgings were well kept, 250 feet were allowed, and the only things to be complained of were the small openings of the windows, and the tendency to fill the rooms to the very greatest number possible. The keepers return weekly the number of lodgers. There were only four houses, and their average number in the last week of September was 32 each night in the four. No new houses were ever registered, and beer houses were considered exempt. The inspector did not visit by night, but he supposed the police did.

There had been no prosecutions for over crowding. In one case of some houses being inaccessible except through a dangerous gallery, the local board of health had obtained the closing of the houses, but not by magistrates' order. The clerk, the surveyor, and the inspector were of opinion that there was no cellar or unfit house inhabited in the town, and no such instance was found. New cottages were numerous and rents low. A single bed-roomed house would be about 1s. 6d., and a house of three bedrooms would be got for 3s. 4d. No large houses were let in single rooms, and hardly an instance existed of more than one family in a single bed-roomed cottage. The great majority of the houses have syphon waterclosets, and cesspools are becoming very few. This new accommodation seems here to suit very well when there is a closet to each house, but when the closet is common property, and becomes the children's playroom, the syphon is often stopped up.



## PLYMOUTH, &amp;c.

## APPENDIX.

No. 2.  
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## PLYMOUTH.

Plymouth, which has always been reputed to be a town of uncomfortable residence for poor people, has been fortunate in having lately had among its inhabitants a number of gentlemen who have taken a warm interest in ascertaining and relieving the peculiar destitution of house accommodation in the town. The Rev. W. J. Odgers and other gentlemen conducted a house-to-house visitation, and a great amount of information on the subject was presented to Mr. Rawlinson in 1853, when he made his inquiry preliminary to the adoption of the Local Government Act.\*

Plymouth continues to be one of the few towns in which a house-to-house visitation is conducted by the inspector of nuisances, and it certainly requires all his attention. The Town Council, as a local board, have no special powers under any Local Act. They have a clerk, a surveyor, and an inspector of nuisances. This last officer has no other engagement, and receives 100*l.* a year. He does his duty well. His reports were regularly filed, and the usual character of his complaints was against choked drains. He said there were only about 30 cesspools left in the town. Instances had formerly occurred of reference to the magistrates being required, but now the proceedings went smoothly in ordinary cases. The sanitary committee, which met monthly, authorized him in more important cases, and had given him two warrants on parchment constituting him "sanitary inspector" and "inspector of nuisances."

The records of the board afford the following instances of action against indoor nuisances.

18th November 1856. In three instances persons were fined 5*s.* each and costs "for an overcrowded room, consisting of more than one family."

The inspector thought that any number exceeding five in a bedroom was overcrowding.

7th December 1860, W. D., "for not cleansing and keeping free from filth the interior of the apartment which he occupies at No. 1, John Street," was, under byelaws, second section, sent to prison for a month in default of payment of a fine.

In December 1862, under the committee's orders, people were removed from some storing sheds where they had obtained shelter.

In April 1862, on notice being given to some occupier to quit, the owners came forward to offer to improve the accommodation.

11th April 1865. A man was sent to prison for a filthy state of his room, and the inspector, as was usual, had the room cleaned.

In Jay's Court, King Street, people obeyed an order to quit some "underground apartments."

Large private enterprises, foremost among which may be counted the railway, and the widenings and clearings of streets by the corporation, have destroyed the residences of thousands of persons in this great

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\* The following remarks on room tenements in Plymouth are by the Rev. W. J. Odgers, and are appended to Mr. Rawlinson's Report. In 4,045 houses there are 37,129 inhabitants, or 9·17 persons to each house; the average number to each house for England and Wales being 5·5. There are 2,267 houses having neither privy nor watercloset accommodation, or 20,788 out of a population of 37,129. Again, 2,703 houses have neither wells nor pumps; that is 24,786 persons have no form of water supply; 11,560 persons reside in single rooms; 573 singly; 2,016, two persons to each room; 1,893 persons, three in each room; 2,500 persons, four in each room; 1,600 persons, five in each room; 1,596, six in each room; 784, seven in each room; 392, eight in each room; 126, nine in each room; and eight single rooms having 10 inmates and upwards.

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PLYMOUTH.

town, while a peculiar geographical position between the water and the hills, on which the houses of the gentry are built, makes it very difficult to find room for poor houses within a reasonable distance of the water side and parts where industries are carried on. The people are consequently now confined in smaller space than ever, a rise has occurred in rents of rooms, and houses such as about the Octagon and Arundel Crescent, which were lately built for and inhabited by families of competent means, are now let by the room to immense numbers of poor people.

"Cottages."

The small houses in Plymouth are new and few, and are not likely to be much increased. The poor people of old probably lived as they do now in chambers in large houses built for the purpose. Nothing has been done under the Labourers' Dwellings Acts. I visited a colony marked in the map as the "working men's cottages." They proved to be 51 in number, set back to back in one row. With two or three exceptions, they consisted of a kitchen and one bedroom. The internal measurement was 12 feet 8 by 10 feet, and the rent was 1s. 6d. a week, including a good supply of water, and the use of a privy and cesspool. The 51 houses contained 54 kitchens and 54 bedrooms, 105 adults and 110 children. The crowded instances were 4 adults with 3 children; 3 with 3; 2 with 5; 2 with 5; 3 with 2; 3 with 3; 2 with 5; 4 with 3; 2 with 6; 2 with 7; 2 with 5. The owner was said to have been a quarrier who had built the cottages for his men.

I went to some cottages called Shaftesbury Cottages, which had been built (as was understood) as a benevolent or public spirited measure. Each had a room and little back kitchen, small yard and privy. Above were three small bedrooms. The roofing had not been economically managed, and the walls were thin. However, they were excellent working men's houses. The rent was 4s. a week, including rates. Ambrose Cottages were let at 6l. 10s. and 7l. 10s., but had no back opening. They had only one bedroom. In these were families of three adults with two children, and of four adults with one. Of single bed-roomed cottages, I also visited Cecil Cottages (1s. 9d.) and Octagon Cottages (2s. 3d.). In one of these lived seven persons, and here the people said that the owners of small houses refused large families, except in the most dilapidated accommodation. In these visits I saw instances where the inspector had caused the top sash of the windows to be opened, or other little improvements made. But one nuisance was prevalent everywhere, and no authority had been given him to abate it. This was the insufficient pavement of the courts and yards. They were paved with large irregularly round pebbles, from which the waste water had washed the matrix, so that it was now impossible to get the ground either clean or dry. Between the stones lay bits of refuse, and the oftener a besom is applied the deeper the hollow chinks become. Flagging is sadly wanted everywhere.

Large old  
houses.

Another class of labourers' dwellings was shown to me by Mr. Harper, one of the union surgeons, old tumble-down houses of large size, of which the best specimens were in Higher and Lower Streets. For instance, No. 20, Lower Street, had a common passage, a common yard, and two common staircases, and was three storeys high. It contained 24 rooms, and each room, of 20, was the whole lodging of a family. Only four families had more than one room, and no room was vacant. Six of the rooms were, however, taken as a venture by one person, and let as furnished lodgings; the rest were held direct of the landlord at 10d. or 1s. a week. The rooms were of

two sizes; one about 15 feet 9 by 13, the other about 11 feet by 10. The whole house contained about 52 adults with 46 children. Instances of two adults with six children; of four adults; two with four; two with four; two with five; and two with four, were found as families having but one room for bedroom and kitchen and all, and as some of these were at the top of a dark and cramped staircase, it is not too much to suppose that the duty of watercloset as well as larder was added to the multifarious uses of the room.

There may be difference of opinion as to whether this was unlawful crowding. In no case did I even suspect that the people were not all of one family. Cases occasionally arise in which it is difficult to say what is a "house," and who is "an occupier." On the occurrence of a cholera an order to shut up a house might often be obeyed in Yorkshire or Lancashire, with only the inconvenience of providing reception for four persons; but what should be done with such houses as this at Plymouth, where lived 98 persons? On the last inspector's report to the committee, a magistrate's order was asked for to compel "the occupier" of one of these rooms at No. 6, Quarry Street, to clean it, and there was a little anxiety as to whether the mere occupier of the room or the tenant of the house was responsible.

Mrs. Marshall in Higher Street is a general or marine store dealer and rag sorter by trade. Her house, for which she pays 17s. a week, including rates, serves for her trade, and enables her to let 18 rooms to 10 families at 1s. 9d. a tenant. Here were three families of eight persons, but with two rooms. A few doors off was a house where 19 rooms were let to 13 families at 1s. 6d. Many of the heads of these families were at sea. Another house of 13 rooms, held 9 families of 31 persons at 1s. 6d. a week; Another, 12 rooms, 10 families; one room to be let; 15 adults with 26 children. The proportion of adults to children was reversed at 16, Moon Street, where were 8 families of 14 adults with 4 children. In one room however, a single woman kept a day school. On and about the Parade, each tenement seemed to be of two rooms. The same in the courts of High Street, where, however, I found five adults with five children in a house of one kitchen and one bedroom. Skarden's Court was of four houses of four tenants each. Each room was 1s., and no family had more than one room. Here were no large families. Jay's Court, which was let in single rooms, contained Irish families of eight and of seven in a room.

Of the third class of labourers' dwellings at Plymouth, where decent modern houses had been invaded as a consequence of the destruction in the old centre of the town, there is a good instance in Arundel Crescent. Here is a modern row, such as a Londoner would expect to find inhabited by people of means of 400l. or 500l. a year, but the majority of the families in it have but one room. Each room is let at 4l. or 5l. a year. There were families of seven or eight in a drawing-room, in a kitchen, or in a garret, according to their means. The kitchens were in the "areas."

The charge of the common lodgings was committed by the local board to the superintendent of police, by whom it was deputed to two very good officers named Wreford and Julian. There are 17 of these houses. The definition of a common lodging-house in use here was, *where lodgers were received for a day*. A weekly return was made by the owners of the number of persons who had slept in each. The police inspectors made unexpected visits, and everything which depends on them was done well. But they had not received from the local authority any rule as to the minimum cubic area to be

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modern  
houses.

Common  
lodgings.



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allotted to each head, and it was too much to expect them to judge correctly in such a matter, consequently many of the rooms were licensed for more beds than they could properly hold. The price was universally 3*d.* a night. Rossi, 21 beds, complained of difficulty in removing the sick. Hamilton, 10 beds, had insufficient accommodation. So had Rowley, who sold marine stores. One room at Painter's had a slate roof, was not underdrawn, and was unfit for occupation on the hot day when the houses were visited. At Kelly's was a room where 1,250 cubic feet were allotted to eight persons. The majority were good houses.\*

## STONEHOUSE.

At Stonehouse the local authority is a paving board, of which Mr. Kent is the honorary secretary. The board has recently appointed an inspector of nuisances for a year. The board has for several years been engaged in forwarding the drainage of the town, until only about a third of the houses now remain in dependance on cesspools. The complaints of the inspector have been almost wholly against foul privies; no action has been taken against crowding or filthy rooms, and nothing has been done under the Labourers' Lodgings Acts. No surveyor is employed, the members of the board doing much of the superintendence in person. Very few workmen's families have a whole house in Stonehouse, and a large proportion have only one room. The houses are generally newer and smaller than in Plymouth. They are leasehold, and land is difficult to find for inferior buildings. I visited many houses with Mr. Kent; the rooms were of an average size of about 12 feet by 12 by 8 feet high. In Brownlow Place a house of eight rooms held eight families, at 2*s.* a room. Large families were here refused. Peel's Cottages had a kitchen and bedroom; the rent 7*l.* Wellington Cottages had four rooms in each house, let at 4*l.* a room. Cleve's Cottages were of four rooms each, and had no back opening; the rent 1*s.* 3*d.* a room. In rooms where 2*s.* a week was paid I found instances of five, of six, and of seven persons living together. The accommodation afforded in barracks for the married men among the Marines seems insufficient, and many lived in the rooms in the town. Their families form some of the poorest population, and although their number is decreasing the members of the board thought their residence in the town a cause of unwholesome crowding.

## Common lodgings.

There was no inspection of common lodgings in Stonehouse. The superintendent of the county police was willing that one of his sergeants should be appointed inspector by the local authority, but he was of opinion that no common lodging house existed in the district.†

## DEVONPORT.

At Devonport the corporation is the authority for carrying out the Nuisances Removal Acts. The Local Acts do not strengthen the authorities; no more money can be borrowed, and the drainage is still very imperfect. Nothing has been done under the Labourers' Lodgings Acts. Mr. Bartlet, the surveyor, has been appointed by the sanitary committee to be inspector of nuisances and sanitary inspector, by special appointment, but without any separate salary. His duties are done in person. He seldom has to trouble the committee with any cases of nuisances in houses, and has no prosecutions. He is assisted by the beadle of the commissioners under the Local Act.

The houses are let in single rooms at a three months' tenancy. They are not generally so large as those in Plymouth, but I heard of 40 persons living in a house of eight rooms, and certainly four or five

\* Plymouth, 1861.—Inhabited houses, 6,084; people, 62,599, or 10·2 per house.

† Stonehouse, 1861.—Inhabited houses, 1,245; people, 14,343, or 11·5 to a house.

persons in a room are commonly found. Cases of unlawful crowding were said to be very rare. One or two notices had been served on the subject in bad instances. The habit of occupying a single room is strong among labourers who were said to be in regular work, and the corporation was not willing to interfere for the abatement of this unpleasant custom. They were, however, just about to interfere on the complaint of the neighbours in a case where fowls were kept in an upstairs room. The cesspools were described as peculiarly disagreeable here, because liable to overflow. Good water was plentiful.

Devonport is leasehold. The owner of the freehold is not willing to improve the property held of him under lease, and the leaseholders, who are placed in a precarious position by the custom of life leases, do not think it worth while to do many things desired by the surveyor and inspector. This officer related that when a lease in the space confined by the fortifications determined, the owner of the reversion often obtained the building of another house on the ground plot, and that thus every yard in the town was getting covered with houses, built without the protecting rules now usual in large towns.

I visited Samuel's Court, which was recommended as a specimen of the worst of Devonport. Here were ten houses let in tenements at about 1s. 6d. a tenement of two rooms, or about 1s. a room.

No. 1 had 3 rooms, 3 families, 5 adults, and 5 children.

No. 2 " 4 " 3 " 5 " 7 "

No. 3 unoccupied house.

No. 4 } ground floor a rag and bone store; over it two rooms contain

No. 5 } two families of eight persons.

No. 6 had 2 rooms, 2 families, 3 adults, and 3 children.

No. 7 " 2 " 2 " 2 "

No. 8 " 2 " 1 " 1 "

No. 9 " 2 " 2 " 3 " 2 "

No. 10 " 6 " 6 " 10 " 3 "

An ordinary room which I measured here was 11 feet 6 inches by 10 feet 6 inches by 6 feet 6 inches.

There was no inspector of common lodgings. Mr. Lynn, the superintendent of the Devonport police, said there were no common lodging houses, not a tramp sleeping in the town, the number required being supplied from the lodging houses of Plymouth.\*

In these towns the rent of rooms is received either by the collector of a non-resident owner or by such owner himself, or is received by the occupier of one of the rooms, who farms the whole house. The rent seemed a precarious income, and ownership seemed often under dispute.

## APPENDIX.

No. 2.

*On the  
Housing of the  
Poor in Towns,  
by Dr. Hunter.*

DEVONPORT.

Tenure.

Common lodgings.

## PORTSMOUTH AND GOSPORT.

At Portsmouth a local board of health has just now been created. There were no clauses of importance in the old local Acts but what are continued under the Local Government Act, and nothing has been done under the Labourers' Dwellings Act. The subject of the appointment of a medical officer has never as yet been proposed to the board. The system of inspection was said to have worked well and never to have been resisted on the ground of want of form. The inspectors of nuisances present to the surveyor, but are sergeants of police, and

PORTSMOUTH.

\* Stoke Damerel, 1861.—Inhabited houses, 4,189; people, 50,440, or 12 to a house.

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## PORTSMOUTH.

therefore under command of Superintendent Barber, who is himself the inspector of common lodgings, and in respect of the Health Acts an able and industrious officer. There are two inspectors of nuisances, Sergeant Read and Sergeant Moore, and they have two defined districts. Sergeant Moore's nuisance report was examined. There was only one instance of a complaint of nuisance which had not been satisfactorily abated, this was against some pigs in Park Lane ; the place was visited, and it was found that, although the accused party proposed to resist, he was clearly in the wrong. Although the inspectors considered structural nuisances to come within their jurisdiction, nearly all the nuisances reported were cases of over full cesspools. The refuse was removed twice a week by the scavengers, and there were the usual powers to clear the town.

Only one instance had occurred of a house so crowded as to become subject to prosecution ; this was about two years ago, and immediately on police interference the lodgers, who were Irish, moved off ; and the evil was abated. There were 1,100 houses to be let in Portsmouth borough, and I was assured by the police that instances of crowding would be difficult to find. Some of the courts and alleys, as on Fisher's property in Marylebone Street, were not only inhabited by a dirty and dissolute population, but contained some abandoned unlet houses ; the shutters, windows, doors, and even the flooring had by piecemeal disappeared, and the houses, though without responsible "occupier," had become filthy nuisances not easily dealt with by the present law though provided for in the new Scotch Act. The houses in Parker's Place, Marylebone Street, were three storeys high, comprising a kitchen and two bedrooms ; these the police thought were the most crowded houses in Portsmouth. Each room measured about 10 feet by 10 feet 6. Of 13 houses eight only were let, and the families occupying them numbered respectively 8, 4, 7, 6, 6, 6, 2, 5. So that 150 cubic feet was the least allowance to each head in a bedroom. In another court of the lowest class I found the mischief of a privy to each house ; these were in a row in an entry, and the more remote privies were barely accessible through the dirt which was strewn about the doors of the rest. These houses had two bedrooms each, and were much larger than in Parker's Place, but the numbers were high ; in two instances there were families of 10 persons.

Common  
lodgings.

The definition of a common lodging house was here clear enough, *a house let by beds with a common kitchen*, but the superintendent would have been glad to have introduced a condition stating the price of the bed. There are about 90,000 inhabitants of Portsmouth, yet only seven or eight common lodgings, a number whose surprising smallness can only be explained by the fact that tramps avoid the promontory as leading nowhere, and push their way direct from Chichester to Southampton. All the common lodging houses were visited. Their price was *3d.* a head, or *4d.* for a single bed. The space ordered to be the minimum was 250 feet ; *Walter's*, however, which was licensed for 15 beds, held six persons in a room 13 feet 9 by 11, by 6 feet 9, or 170 cubic feet per head. *Whymark's* contained 57 persons in 34 beds. It was a well conducted house. The owner said the inspector visited him every day. He complained of a difficulty in getting rid of sick people. *Ludwig's* held 35 persons in 16 beds ; a very good house. The rest were smaller and of various quality. These houses were supplied with papers and cards, and the inspection was proved to be a reality by the owner's evidence. The small number, however, showed how little protection the Common Lodgings Acts extend to the population of this large town.



The town of Gosport is governed, under a local Act of 1763, by a board called the trustees or commissioners, who are the local authority for administering the Nuisances Removal Acts. The arrangement is said to have worked well, and there is great difference of opinion as to whether any advantage is likely to follow the introduction of the Local Government Act. The town is wholly undrained, and the cesspool system which prevails is especially unpleasant here, because the ground is low and wet. The use of private wells is being discontinued, there being an excellent water supply from an artesian well. Mr. Compigné, the clerk to the trustees, stated that for every reasonable purpose except a main drainage the present board had sufficient power. He and some gentlemen well acquainted with the circumstances (although others did not agree with them) thought that a main drain having its exit at low-water mark might drain the town, but would be liable to be frequently filled up with harbour mud, and would be open only four hours out of every twenty-four under the best circumstances. The board was energetic in its function, and its officers appeared to do their duty. The inspector of nuisances and lodgings, Mr. Frisby, was paid 25*l.* per annum for the nuisances, 5*l.* for the lodgings, and 30*l.* for collecting the rates: he did a little house-agent business besides. Mr. Frisby presented his nuisance book at regular periods to a sanitary committee of the trustees, and gave opportunity to poor people for making anonymous complaints. The book had been in use about eight years and contained 700 presentments, of which five out of six were cases of overfull cesspools. No prosecutions under the Nuisances Removal Act had proved unsuccessful, and people had generally yielded to the inspector's requirements. Farmers emptied the cesspools at night. The board had the courts and even such privies as their hose could reach flushed with water weekly, and it sometimes lime-washed the narrow passages and courts.

The board had done nothing under the Labourers' Lodgings Act and meditated nothing, for there were very many houses to be let, and my visits showed that crowded houses are at any rate rare if they exist at all. The question of appointing a medical officer had never been discussed.

A monthly report of the common lodgings was also presented, but they were always few and now only one remained on the register. The definition of a common lodging in use here was a house where "*tramps*" were supplied with lodging by a night at a time. I visited the common lodging called James's. There were six and a half beds in which nine persons had slept the night before at 3*d.* each. The rent was 3*s.* 3*d.* a week. No sheets were to be seen, the beds were not made (p.m.), and a pail was substituted for the necessary chamber pots. This wanted reform. Burke, who wished to register, had only two rooms, but better accommodation than James. Small houses should not be encouraged, as the inspectors cannot then depend upon the necessary decent seclusion of the sexes and of the married. Smith was not registered, but received six beds in four rooms.

A great proportion of the squalor which characterizes much of Gosport is due to the dissolute sort of inhabitants. Very decent tenements at low rents stood to be let, while the more ruinous, dirty, and every way wretched were occupied. I visited Wyse's Alley (two bedrooms, rent 2*s.* and 2*s.* 3*d.*, no crowding); Rodney's Head Alley, where a ground floor, divided by a thin partition into two poor rooms, was let at 1*s.* 6*d.*, and a first floor at the same, although no water was supplied; Rimes Alley, where houses measuring 10 feet 9 by 9 feet 7, the ground storey being only 5 feet 11 high, were let at 1*s.* 6*d.*, but found no crowding.

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GOSPORT.

## APPENDIX.

No. 2.

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LIBERTY Gos-  
PORT.

I visited with Mr. Frisby two instances of nuisances; one was a cesspool which leaked into an adjoining house, the other was the dangerous, filthy, and neglected property said to be Mr. Austen's. Attention was promised to both places.

Extra Urban or "Liberty" Gosport, a part of the parish of Alverstoke, is governed in matters of health by a nuisance removal committee, which works in accord with the highway board. Mr. Thomas White, who has no other profession, is appointed clerk and inspector at 50*l.* a year. He is re-elected every year, and is, in the opinion of a gentleman long the chairman of the committee, a faithful officer. His nuisance book is presented regularly, and he obtains the chairman's sanction for all his orders for removal. Much good has been done, dirty privies, and dung heaps had been removed, the night carts had been compelled to carry their manure farther from the town, and offensive ditches had been covered. Only one summons to the petty sessions had been issued, and that had been compromised.

There was no common lodging in the Liberty. Population was moving from the old town inland to the parts of Forton, near the new forts. Some of the houses there were a bad class of cottages, but no great crowding could be heard of in any district of Gosport. Of the low population a large proportion are prostitutes by trade, and in their establishments the number of residents is seldom large. The better sort of labouring poor seemed to prefer Portsmouth.

## PRESTON.

PRESTON.

There are no extraordinary powers of dealing with crowded or unfit houses at Preston. The local authority is the corporation in its character of local board of health. There is no medical officer. The inspector of nuisances has, in common with two sergeants of police, the inspection of the common lodgings to attend to. The inspector seems to measure the rooms and grant the licences, but when that is done the ordinary visits are made by the police. The inspector has no private engagements. Preston fortunately contains a large number of small houses at rents varying from 1*s.* to 4*s.*, and, in the inspector's words, "every working man, if he likes to work, can have a comfortable house of his own."

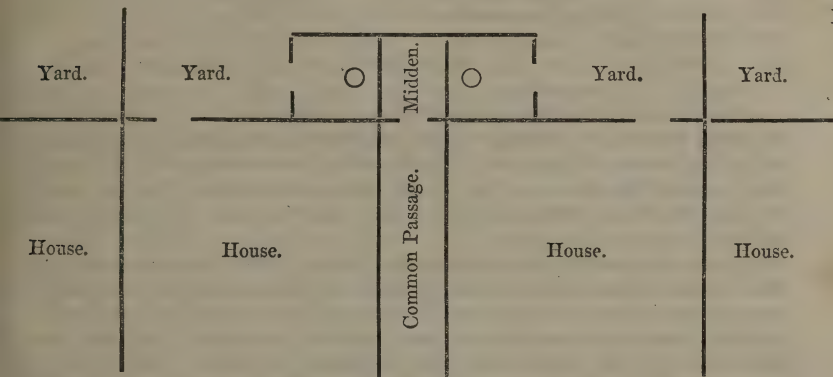
The officers thought there was no overcrowding in the town, and the last information on that subject given by the inspector to the local board was dated 15th February 1864. There were but few rooms let off in large houses to poor people, less than 200 as it was reported. The small houses stood on very little ground, and in some parts of the town they seemed to be rather too full. For instance, in the four streets called Young Ireland, it did not appear that two couples clubbed together to keep house, but that single men or single women, mill hands, lodged often two in a bedroom at these houses, and joined the family in the kitchen. The definition of a common lodging laid down by the local legal opinion was founded on *nightly occupancy*, and the police were therefore unable to control this system. The registered common lodging-houses which had once been 70 were now only 25 in a population of 85,000, the decrease being due to the want of a more inclusive definition. Nothing is likely to be done under the Labourers' Dwellings Act. Since the Local Government Act has been introduced an excellent class of cottage houses has been built at

about 3s. or 4s. a week. The land on which each stands is worth about 20l., and bricks are so cheap as 16s. or 18s. a thousand. All the new small houses, and they form about a third of the town, have little walled off yards and separate privies, with an ash midden between the privies, to which access is got by a passage, to which a locked door is always attached, between every two houses.

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PRESTON.



In the older part some cellars are used as bedrooms. Near the markets I visited three double cellars, in which lived eight persons. Each of the three households paid 1s. 2d. a week. The nearness to the markets caused this neighbourhood to be crowded with buildings, but the general condition of the homes even here was not bad. I saw in High Street a cellar bedroom, which being only 6 feet 6 inches high, and only 1 foot 10 inches above the surface, was apparently in violation of the law, and the inspector explained, on inquiry, that during the recent poverty caused by strikes and by war the law had been relaxed by the borough authorities. In Buckingham Street, in Young Ireland, the alley at the back of the houses into which the back doors opened was only 3 feet wide. The houses were two storeys high, and were let at 2s. to 2s. 6d. At the back of Rhodes Square for 1s. people got little houses of one bedroom, and in such were families of six and five members. I examined the neighbourhood of Avenham Lane and of Brook Street with much satisfaction. Where the yards were very small the board had insisted on waterclosets being put down in new buildings, but they were often put out of order by ashes being thrown in. It is to be observed here, as throughout the North, that the custom of supplying the children with a low seat does not prevail, and that consequently the little creatures are seen to deposit in all unsuitable places. The insides of the houses were generally very decent. The landlords customarily do the whitewashing, or allow a week's rent for the purpose, yearly. Very few complaints for omitting to whitewash go to the board; the last was dated 27th July 1865; but the inspector usually succeeds in inducing the people to whitewash without formal process.

The officers would be prepared in case of the visit of an epidemic or other reason to institute a house-to-house visitation, but see no need for it at present.

With the exception that the definition in use allows a large number to escape, the visitation of the common lodgings is very good. The area per head exacted is 250 cubic feet. Whitewashing is required every three months, and a regular diary kept of the state of each house and the number received. In this summer of 1865 a woman was sent to



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prison for continuing to receive lodgers in an unfit house after her licence had been withdrawn. There were no partitions for the seclusion of couples. The price of a night's lodging was, in one large house, so low as  $2\frac{1}{2}d.$ , but the accommodation was proportionately inferior.

## READING.

## READING.

At Reading there is not that pressure of population which should make the local authorities anxious about overcrowding. The chief of police is the inspector of common lodgings and of nuisances, under the local board of health, which is the corporation. He relieves vagrants, and sends to the union vagrant ward about 9 tramps a day. The rest of the shifting population is received by 7 registered common lodging houses, which are seldom full, but which are licensed for 96 lodgers, and by a large model lodging maintained by public spirit which receives about 60 persons every night. This house is not registered. It is a good building, and the equipment is very good. It was very clean, though with a little untidiness as regards the pots and windows, which was important in the very hot weather when I visited the town. Among the common lodgings was one licensed inn and several beershops. The allowance of air seemed to be 250 feet, and there had been some convictions for exceeding the licensed number, when the offenders were fined 1s. each. These were the only prosecutions for overcrowding which had occurred, and the authorities thought the Common Lodgings Acts sufficient in Reading to control the evil. The explanation of the small number of houses licensed was, that beds let on weekly tenancy were not supposed to come within the scope of the Acts. In private houses there did not seem to be any crowding, the inspector, when he visited houses to order limewashing, not finding any great number of beds. There were no cellar bedrooms, and very few persons having only one room as their whole tenement. The surveyor had recently reported some houses unfit for habitation, as being dilapidated and of original bad construction, but he did not expect any action to be taken on his report. Mr. Walford is appointed medical officer.

## SHEFFIELD.

## SHEFFIELD.

In Sheffield the Local Government Act has been but very recently applied; it is administered by the corporation as a board of health. The growth of the town in the last 20 years has been enormous, and in consequence of the excellent custom of building very small houses, and the use of yards, which very few houses are without, the town covers a great area in proportion to its inhabitants, who probably do not much exceed 200,000. Back-to-back houses are by far the commonest houses in Sheffield; but one of the principal evils of that system, indeed the only one upon which all persons are agreed, viz., the difficulty of disposing of the dungsteads, is lessened by the custom of dividing the yards into which the back houses look by means of walls running from one back house to that opposite to it, at distances varying from six to 12 house-widths, according to the size of the different properties.

Thus in few or no cases are there front houses looking into one street and back houses into another, the yards being usually wider than streets, and all traffic down them being prevented by the cross-walls. Nearly all the small houses built in the last 40 years are of this character, are let at 2s. 6d. to 3s. 6d. a week, and contain two bedrooms. Under this system there was never known to be but one cellar bed-room in the town, and houses let in single rooms were very rare indeed. Now, however, the new byelaws, which seem to be in great part founded on those of Preston and Bradford forbid back-to-back houses altogether, and if houses of the same external size are built, and not divided into backs and fronts, but let as six-roomed houses at 5s. to 7s. a week, being both too large and too costly for workmen's families, sub-lettings and lodgings will become the rule here, as now in the old towns, which have always been considered examples to be avoided. As at Birmingham, however, there is a sufficient number of small houses already built to give a general character to the town as regards house accommodation far superior to the English average. The high death-rate in Sheffield is probably chiefly due to the cold climate, the employment of women,\* and the unhealthy handicrafts. Nothing had been done under the Labouring Classes' Lodgings Act, and nothing is likely to be done, the working men being able to secure a supply of houses by ordinary means. Very few houses are now to be let, but the demand fluctuates. In 1851 only 270 houses were to be let, while in 1861 the number was 3262. Of internal filth requiring police interposition, not a single instance was found,† and there had been no report by any officer of an instance either of overcrowding or of neglect of internal cleaning. Every Friday, in ordinary seasons, the women seem to lay the whole place under water, throwing water against the windows, and flooding the kitchen floors and pavement, even in the back lanes and courts.

The worst part of the Sheffield dwellings is the bad repair; the dilapidation here amounts to prejudice to health, but is beyond the reach of the authorities. Bedrooms over privies have always been condemned by the magistrates. Wherever proceeded against, the occupier would be fined until the nuisance was abated, and no such nuisance is now thought to exist.

It is not easy to determine whether there is much overcrowding, no visitation being made. I attempted in various parts to ascertain, calling at 45 suspicious looking houses for the purpose. The worst instances were a pair with six children, in a kitchen and bedroom; four adults with three children in a kitchen and bedroom, rent 1s. 6d.; six adults with three children in a kitchen and bedroom, rent 1s. 8d.; eleven adults in a kitchen and two bedrooms, paying 2s. 4d. rent; three adults with six children in a kitchen and bedroom; five adults in a kitchen and bedroom; and four adults with three children in a kitchen and bedroom. A night visit to these houses would probably disclose higher numbers, and as the people were chiefly Irish there is probably a fluctuating number. The size of one of these full cottages was 12 feet 6 by 10 feet 6. Most of the people paid rates; the

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\* Going into a house at Sheffield we saw a haggard infant, and asked what was the matter with it. A woman gave it a glance, and said "mother works;" a disease with which I was sufficiently familiar, but for which the name was new.

† Of course I could not search the whole town, but I took nearly all the streets called "crofts," and went into each yard. The houses of some of the German sugar bakers are said to be sometimes dangerously filthy, but they are not numerous.

## APPENDIX.

rents varied from 1s. 6d. to 2s. 4d. The following table shows the quantity of house accommodation in some poor quarters of Sheffield :—

No. 2. On the Housing of the Poor in Towns, by Dr. Hunter.  SHEFFIELD.	Court A	7 houses	9 bedrooms	19 adults	19 children.
	" B	5 "	6 "	16 "	4 "
	" C	9 "	14 "	20 "	22 "
	" D	2 "	2 "	4 "	7 "
	" E	6 "	9 "	21 "	10 "
	" F	9 "	12 "	17 "	5 "
	" G	7 "	9 "	20 "	18 "

There was no arrangement for emptying the ash and dung middens; the matter was left to private enterprise, and yet the emptying was better done than at Leeds, where it is supposed to be provided for by the authorities.

There are 70 common lodging houses now licensed, and the number is rising. An inspector of the police inspects and reports to chief constable Jackson. It is the practice here to consider that a *weekly tenancy liberates a lodging* from the control of the Act. The inspector makes nightly visits to registered houses, but takes no measures to bring other houses under licence, except by inquiry among the licensed owners. No return of the number of lodgers is demanded. The space allowed is 250 cubic feet. The prices are 3d. and 2½d. With two exceptions, the common lodging houses visited were very poor houses, but were decently kept. They lay chiefly about Water Lane, Millsands, Bridge Street, and Spring Street. The largest was built as a model lodging, but hardly deserves a licence at all, having no yard whatever, and yet receiving 71 lodgers. Clothes are dried indoors; there is a water-closet in the house. The same owner has a much better house in Millsands, where he receives 47 lodgers. His rent altogether is 63l. No partitions between beds were in use. The inspector was called occasionally to remove the sick. No other house contained more than 12 lodgers.

New byelaws have been issued this year. No. 25 provides for the closing of houses unfit for habitation, but it is of no value since the decision in *Burgess v. Peacock*.

The visit of the Social Science Congress to Sheffield in 1865 induced much adverse criticism on the subject of the north-country ash-midden, which was an arrangement probably new and disgusting to many of the members. The small number of *closets* was animadverted on. For this deficiency there can be no reason except the saving of cost; but a multiplication of *receptacles* seems to be a measure very undesirable. It would seem beyond the scope of this report to relate the arguments so frequently and conclusively used in favour of sewerage towns, and therefore accepting, as one must, the ash-midden system as the only one now existing in most of the great towns of the north, it only remains to report that the average quantity of accumulation in the Sheffield pits was when the town was visited low as compared to other similar places.

I subjoin the result of a few visits made at night.



## BOROUGH OF SHEFFIELD.

APPENDIX.

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SHEFFIELD.

Country of Occupier.	No. of Day-rooms in the House.	Size in Cubic Feet of each Day-room.	Size in Square Feet of Window in each Day-room.	Number of each Sex living in the House.				Total Males and Females.	No. of Bedrooms in the House.	Size in Cubic Feet of each Bedroom.	Size in Square Feet of Window in each Bedroom.	Size in Square Feet of end of Chimney in each Bedroom.	Number of each Sex sleeping in each Room.			
				Adults.		Children.							Adults.	Children.		
				M.	F.	M.	F.								M.	F.
Ireland	1	1598'62	20'52	4	3	2	2	11	1	1664'0	10'0	1'69	4	3		
	2	286'87	7'23	—	—	—	—	—	2	1130'0	13'75	—	—	—	2	2
Ireland	1	739'2	14'7	4	1	3	—	8	1	858'23	14'7	1'76	4	1		
	2	499'94	9'35	—	—	—	—	—	3	925'75	6'25	1'32	—	—	3	
										420'42	3'29					
Ireland	1	936'0	16'20	—	2	—	2	4	1	1040'0	15'12	1'76	—	2	—	2
England	1	699'84	14'44	1	1	—	—	2	1	890'12	15'0	1'21	1	1		
Ireland	1	756'0	15'937	4	1	—	—	5	1	1039'5	12'96	1'32	4	1		
Ireland	1	906'75	16'2	—	2	—	1	3	1	1129'92	15'3	2'25	—	2	—	1
Ireland	1	820'8	14'025	1	2	1	—	4	1	945'0	13'76	1'2	1	2	1	
England	1	966'0	14'025	1	1	—	—	2	1	877'8	14'4	1'44	1	1		
									2	858'0	11'55					
Ireland	1	828'0	16'8	1	1	2	3	7	1	776'25	15'12	0'5925	1	1		
									2	819'95	11'55	—	—	—	2	3
Ireland	1	912'0	17'94	1	1	—	—	2	1	654'5	11'76	1'5625	1	1		
									2	775'0	11'0					
Ireland	1	742'5	16'65	3	1	—	—	4	1	744'0	16'875	1'8	1	1		
									2	744'0	16'875	—	2			
Wales	1	1020'0	20'25	1	—	2	2	5	1	1144'0	21'16	1'2	1	1	2	2
									2	1274'0	20'25	1'8				
Ireland	1	802'125	14'4	1	1	1	1	4	1	1109'3225	11'55	2'4	1	1	1	1
England	1	912'0	14'0	1	1	—	1	3	1	1201'0	11'0	1'44	1	1	—	1
Ireland	1	1376'55	19'08	3	2	1	—	6	1	1285'65	12'8	1'56	3			
	2	988'125	9'1	—	—	—	—	—	2	956'25	9'0	—	1	1	1	
Ireland	1	829'15	15'3	1	1	—	3	5	1	1309'0	15'12	1'32	1	1	—	3
Ireland	1	825'0	14'0	1	1	—	—	2	1	1144'0	14'7	1'44	1	1		
England	1	825'0	14'0	1	1	—	1	3	1	1144'0	14'7	1'44	1	1	—	1
Scotland	1	731'5	14'0	1	1	—	—	2	1	900'0	14'0	1'44	1	1		
England	1	1042'5	18'40	3	3	1	1	8	1	924'0	15'05	1'2	1	3	1	1
									2	924'0	15'05	—	2			
Ireland	1	811'84	13'5	1	1	—	—	2	1	799'0	9'0	1'56	1	1		
									2	799'0	9'0	1'56				
Ireland	1	811'84	13'5	1	1	2	1	5	1	799'0	9'0	1'56	1	1		
									2	763'0	9'0	1'56	—	—		1
Ireland	1	803'0	14'4	1	1	1	2	5	1	803'0	13'5	1'69	1	1	1	2
Scotland	1	765'0	14'0	1	1	1	1	4	1	759'7	13'5	1'3	1	1	1	1
England	1	632'4	9'6	2	1	—	—	3	1	630'0	14'0	1'32	2	1		
Ireland	1	525'72	11'7	2	2	—	—	4	1	685'44	8'75	1'48	2	2		

The houses stand at the bottom of Coalpit Lane. Chief Constable Jackson, to whose courtesy I owe the opportunity of presenting this Table, has very properly considered all persons above 13 years of age to be adults, as no doubt they must be in all statistics of concubinage. The houses are a fair sample of the worst class in Sheffield. It need scarcely be added, that in none was there any ventilation, except that derived from doors, windows, and chimneys.

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SOUTHAMPTON.

At Southampton all the Local Acts were in effect superseded on the formation of a board of health under the Local Government Act. The board, which is identical with the corporation, has proceeded far in extensive drainage, and it is probable that of about 6,000 houses 4,000 are now in connexion with the board's system; the rest are supplied with cesspools, and among this rest are very few but labourers' tenements. The board has an active medical officer, Mr. Cooper, to whom it pays 200*l.* a year. He engages in private practice of his profession. He and the surveyor between them have the services of a street keeper and reporter of nuisances, but the real inspection, both of nuisances and of common lodgings, is performed by the medical officer in person. A sanitary committee of the board has been formed, and for a while it met regularly, but now the officers seem but seldom to require reference to it. The people fall in willingly to the requisitions of the board, and no objection has been raised on the ground of the street keeper not being himself the inspector.

Nothing has yet been done under the Labourers' Dwellings Act. A joint stock company formed for the purposes of the Act has not yet begun operations. There is no peculiar difficulty attending the acquisition of land on which to build small houses. Working men are generally able to pay the rent of a whole house, and the rents were certainly high.

Common  
 lodgings.

The definition of a common lodging sanctioned by the board is *a lodging-house where the lodgers take beds for a single day*. The cubical area assigned to each bed is 250 feet. There has as yet been no prosecution under the Common Lodgings Act, and the owners are anxious to obtain registration, and to conform, as far as their means allow, to the requirements of the medical officer. From the definition accepted it might have been expected, as actually occurred, that on the officer's withdrawing his licence from a house which was manifestly improperly kept, the owner eluded the law by accepting no lodgers for so short a term as that defined. Though fewer than formerly, there are still 25 common lodgings in Southampton. I visited various common lodgings and other poor tenements in Simnel Street and Blue Anchor Lane, and also in the neighbourhood called the Rookery. As a general rule, the walls of the registered lodgings were limewashed; there were sheets and utensils to each bed; the floors were decently clean. The worst of the accommodation was that the houses were old and tumble-down. It was represented that lords and ladies had slept in the mouldering garrets now occupied by itinerant musicians and journeymen out of work; but, except for spaciousness, there was nothing good about these rooms. A "bed," as usual, means room for two; a single bed is a "half-bed." The beds were let for 3*d.* a night each person. The bedding was usually good; there was seldom a dirty floor or a bundle of dirty clothes to be seen. The married were always separated from the single, and the sexes of the latter parted. I visited the houses of Mary W. and Mr. S., who had applied for a licence without success. These houses were quite unfit, and the contrast which they presented to the registered houses showed the usefulness of the law of registry. The sheets were ragged, the floors filthy; there were heaps of dirty rags and clothing, and beggars' baggage on the bedroom floors. The privy, which served seven houses, was covered, floor and seat, with fresh dung. The broken windows were numerous, and stuffed with rags. The houses

were short of washing and other utensils. The owners said they might well be poor, because they could take no nightly lodgers, and that weekly lodgers so often defaulted. They promised to get into order for registration. It would appear that these houses were evading the law, through the definition chosen for a common lodging by the local authority. Nothing could be more filthy and unwholesome than the whole establishments. The charge was very low.

Little had been done to maintain cleanliness within the private houses. Dustmen went round regularly, and emptied the dust bins of public courts. When a yard was strictly private to a single house, the refuse had to be exposed in a basket in front for the dustman. The town scavengers visited and washed every public court and privy twice a week, and as the board has obtained a smooth flagging for the courts the result was an unusually clean appearance.

On visiting the privies I saw three classes :—(1) the old cesspools, none of which were over full, though many were badly arranged ; the closets rickety and difficult to get at : (2) new waterclosets set on the town drains, which were unnecessarily numerous in some parts. Each house in a very poor street had one. The rough tenants had in many cases disordered the mechanism, and many pans were piled with ordure. A third plan (3) of trough waterclosets is an uncommon but very good one. Temporary cesspools, shallow and smooth bottomed, are formed on the drain, the privies are set over them, and twice a week when the scavenger comes round the whole is flushed out into the drain. By far the greater number of complaints of nuisances received were of obstructed closets. In the summer of 1865 a gentleman was charged before the magistrates with keeping privies at Northiam so as to be a nuisance. They were on cesspools, and the magistrates, on Mr. Cooper's evidence, ordered them to be drained. This was resisted and a fine of 2*l.* each on 11 cottages was inflicted. The owner preferred to go to prison, but afterwards paid the fines and drained the privies. His rents were raised from 3*s.* 6*d.* to 4*s.* a week, and, as I was told, tenants at that rent were easy to get, though between 400 and 500 houses are to be let in Southampton.

Four-roomed houses were common, and brought about 4*s.* a week. Three-roomed back-to-back houses were not so common, and brought about 3*s.*, while it was only here and there a two-roomed house was met with, or indeed any tenement at less than half a crown. Goater's Court was a specimen of back-to-back property. There were 14 houses and 2 privies. One house was to be let ; the rest contained 74 persons. I visited Goater's Alley ; Campbell's Court, Cross Street ; Lansdowne Place (10 houses with 2 privies) ; Petty's Court (one bedroom, rent 2*s.* 9*d.*, largest family 5) ; Pardy's Court (23 persons in 5 houses to one privy) ; and the conclusion drawn from the inspection was, on comparing with other towns, that there was little overcrowding. The old property was uncomfortable from the masses of decayed wood work, and the rents were high. Many of the gully holes on private property were untrapped, and waterclosets had been too freely introduced where the cottage-tenants were not of a class to be trusted with their management.

The officers entrusted with the administration of the Local Government Act regretted the loss of some of the repealed clauses of the Public Health Act. They thought that the party walls of new small tenements should extend to the roof, but had no power to enforce it. There had been cases in which the magistrates had required, as proof of a nuisance on cottage property, the evidence of neighbours who had suffered from the nuisance, and this was said to be felt as a hardship by poor people, who thought the inspector ought to shield

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Cleaning.



## APPENDIX.

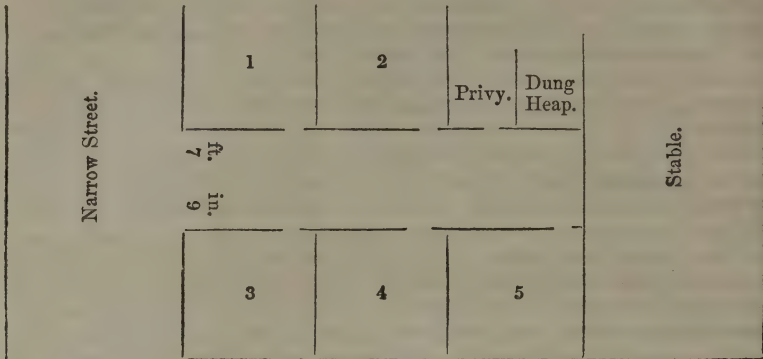
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them from the invidious responsibility of complaint against a powerful neighbour.

I append a plan of Spring Court, Rookery, Southampton.



Houses 1, 2, 3, 4, 5, and other buildings, are 3 storeys high; 3, 4, and 5 have no back door or window. Over the privy and dungheap are two storeys of hay store. Thus the only openings into No. 5, for instance, are from a court, 3 storeys high, and 7 feet 9 broad, and just opposite a privy and dung store. The rents 2s.

The inconvenience of combining the prosecution of nuisances with private medical practice, as indeed with any private business at all, was almost daily apparent, and Mr. Cooper thought better results would be got by a combination of towns to support a medical officer, who should have no other engagement, and who would be entirely free from local influences.

## SUNDERLAND.

SUNDERLAND.

The Sunderland corporation has appointed Mr. Paine inspector of nuisances and common lodgings. The action of a medical officer is to some extent attained through the reports received by the sanitary committee of the corporation from the registrars of deaths. Two instances of overcrowding had been prosecuted on medical evidence. The cases were thus described:—10, Simpson Street, 2 upstairs front rooms contained 4 adults with 8 children, being two families, cubic space 1,951 feet; 2 back rooms contained two families of 4 adults and 4 children in 1,979 feet. Also at No. 13, Simpson Street, two upstairs back rooms held two families of 3 adults with 7 live and 2 dead children\* in 1,979 cubic feet. These instances were convicted on the evidence of Dr. Yeld and Dr. Morgan, and the magistrates warned the offenders.

Under the Common Lodgings Acts much had been done to control overcrowding. The detectives visit suspected houses at night, and are bringing all the seamen's boarding houses under the law. The

\* Private benevolence could hardly find a better or more pleasing object than the erection of a mortuary chapel in a great town of single-room tenements, such as Sunderland, where bodies of the dead might be reverently cared for while awaiting interment. The poor, as a rule, only bury on Sunday.

worst houses of the sort now open were said to be those kept by licensed victuallers. There were no emigrants' houses. The registered lodging houses were only about 30. The space ordered was 300 cubic feet per head. Those visited were among the worst, and were certainly untidy, and in one case dirty, but they were better than the private houses around, and gave the authorities some satisfaction in the fact that no case of fever had occurred in them. They were 3-storey houses, and held 24, 26, or 28 persons. These people washed at home, and having no yards hung out their linen at the windows.

At Sunderland, as at Liverpool and Hull, the houses are by far too many on the area; there is not street or yard room. A dense aggregation of houses forms an almost solid block on the landward side of High Street, on the right hand, after passing Church Street. In this great block may be seen long unbroken rows of houses of 3 or 4 storeys, and often nearly 30 feet high, each room being let at 1s., or 1s. 4d., or 1s. 6d. a week (besides a water rent) to a separate family. It would be deceptive to quote the numbers of people said to be in single rooms in this warren; an accurate account could not be got. It must suffice to say that in long lanes of 3-storey houses, often back-to-backs, the width of roadway between the houses is only 6, 7, or 8 feet, and that every room seemed full of people; the linen drying from nearly every window, and mixing with that of the opposite neighbour, showed at a glance how universal were the single-room lettings. Robinson's Lane, a sort of main street of larger houses traversing this block, measures 13·3 in width. None of these houses or even rooms were observed to be void, and the rents are high. Cottage building ground was supposed to be worth 3½d. or 4d. a yard.

A power like that of the Liverpool Act is much wanted here, and might be applied in this comparatively small town without any evil resulting from dislodging the well-paid labourers who live here. The authorities thought a patient course of buying and destroying old houses would before long redeem the place. And there were houses rendered almost useless by the close proximity in which the neighbouring owner had built up to them, and consequently offered for sale at the value of the land and material. The privies also were so cabined that emptying was difficult. The crowded state of all the poorer houses, old or new, large or small, or even when the little property of the labourer himself, showed that there were not houses enough for the demands of the trade of the town. In hundreds of instances the back-to-backs were so arranged that no out-door place could be found where even the public could build privies, and consequently the authorities have been obliged to compel the owners to put water-closets into houses. These are now numerous among a population unfitted for their use. There were no cellar bedrooms discovered; they are probably very few, and all qualified under the cellars clauses.

New byelaws had been recently obtained. By the 31st the authorities supposed they had taken power to declare some old houses "unfit for human habitation." One miserable old house, broken almost to pieces, has been ordered to be declared uninhabitable under this byelaw, and the authorities had some thoughts of trying to get the declaration of unfitness applied to all instances of the absence of a closet. They had previously succeeded in shutting up one house, and indeed seemed to wish to push all their powers for the public protection as far as the law would let them.

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The chairman, Alderman Williams, considered that the protection which the Common Lodgings Act afforded to vagrants should be extended to the more worthy class of resident labourers. He would have houses which are let in single rooms subjected to licence, as at Glasgow. Nothing has here been done under the Labouring Classes' Lodgings or the Labourers' Dwellings Acts.

MONKWEAR-  
MOUTH.

Monkwearmouth has been part of a great estate, while Sunderland, only separated from it by the River Wear, has been held by small owners. It is perhaps in consequence of this difference of tenure that Sunderland long ago grew up into an important town, while in Monkwearmouth, where people could only build on life leases, comparatively fewer and meaner houses were until lately erected. The present owner, Sir Hedworth Williamson, takes a more liberal and perhaps a wiser course with the estate, and has the reputation of driving no hard bargains with the Wearmouth tenants. Small house rents were lower than in Sunderland, and the lower houses and wider openings made Wearmouth much nearer to what a working man's colony ought to be. But the pressure of population was of course the same. A house was examined in Hedworth Street, to see what success could attend an effort to prolong its existence by repairs on the lapse of a lease. It was found to contain four families; one had the ground floor for 2s. 9d., and the others paid respectively 2s., 1s. 3d., and 1s. 2d. for the three upstairs rooms. In Topcliffe Row also a house was selected by chance for inspection. The rent was 10l.; there were 5 rooms containing 18 persons. The tenant of the ground floor of two rooms had a small family, and found room for 6 lodgers.\*

The chief constable of Sunderland (who grudges no trouble) was in the habit of procuring a nominal return of the occupants of common lodgings. As the form has not been seen elsewhere, it is appended, with the contained names and descriptions, which show the sort of persons accommodated in these places and the duration of their residence.

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\* Mr. Alderman Williams, chairman of the sanitary committee, has printed the following paragraphs in a letter to the "Builder."

"The narrowest 'street' in old Sunderland, except an opening miscalled 'Hodgkin Street,' but properly 'Little Flag Lane,' is 10 feet wide. In Hodgkin Street there are not more than eight or ten tenemented houses; the remainder is occupied by the back-doors or warehouses of business premises.

"The local authorities, with all the vigilance they can exercise, find it impossible wholly to prevent the nightly commission of nuisances in some of these narrow lanes; but for such places they are, on the whole, commendably clean and wholesome, and certainly exhibit a most pleasing improvement on the state of things a few years ago. Most of the houses in these lanes and streets are built back to back, with no yards, hence there is no space for ash-pits and privies; and to introduce water-closets into these tenemented houses is a work of great difficulty."

All he says here can be confirmed by this report, but with the understanding that by the word "street" he means places bearing that designation, as there are many lanes of less than 10 feet width."

Mr. Williams's little tract of 1863 contains a curious calculation of the density of persons on the surface of several boroughs of England; but these figures, representing the number of persons within an arbitrary political boundary, have not always the same value. He says the persons per acre in the parish of Sunderland are 176, or 11.25 to a house. He names 5 lanes of an average width of only about 10 feet, in which lived 577 families. There are, it appears, 9 streets of 8 feet width and under, and 12 more between 8 feet and 12, besides which are several passages or stairs of from 5 to 7 feet wide, bordered by inhabited houses.

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## COMMON LODGING HOUSES.

APPENDIX.

Weekly Return of Lodgers in the House occupied by Isabella Jackson  
in Stamps Lane, Sunderland.

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Date.	No.	Name of Lodger.	Age.	When arrived.	How obtaining Livelihood, and Remarks.
Sept. 21 -	233	Sarah Wilkinson - -	16	1 night -	Hawker.
	234	Ellen Angus - -	13	do. -	do.
	235	John Crawford - -	50	do. -	Brickmaker.
	236	Isabella Crawford - -	26	do. -	Wife.
	237	James Thompson - -	41	do. -	Compositor.
	238	James Townsley - -	24	3 weeks -	Hawker,
	239	Margaret Townsley - -	18	do. -	Wife.
	240	Elizabeth Watson - -	37	4 months -	do.
	241	James Cryan - -	50	1 night -	Gardener.
	242	George M'Dougall - -	33	4 months -	do.
	243	Margery M'Dougall - -	37	do -	Wife.
	244	John Watts - -	40	2 nights -	Carver.
	245	Sarah Wilkinson - -	16	do. -	Hawker.
	246	Ellen Angus - -	13	do. -	do.
	247	John Crawford - -	50	do. -	Brickmaker.
	248	Isabella Crawford - -	26	do. -	Wife.
	249	Mary Smith - -	60	3 nights -	Silk dyer.
	250	Elizabeth Smith - -	16	do. -	do.
	251	Charles Smith - -	21	do. -	Bellhanger.
	252	Robert Greig - -	40	1 night -	Hawker.
	253	Bridget Greig - -	40	do. -	Wife.
	254	Samuel Beaton - -	26	do. -	Labourer.
Sept. 22 -	255	James Townsley - -	24	3 weeks -	Hawker.
	256	Margaret Townsley - -	18	do. -	Wife.
	257	Elizabeth Watson - -	37	4 months -	do.
	258	James Cryan - -	50	2 nights -	Gardener
	259	George M'Dougall - -	33	4 months -	do.
	260	Margery M'Dougall - -	37	do. -	Wife.
	261	John Watts - -	40	3 nights -	Carver.
	262	Sarah Wilkinson - -	16	do. -	Hawker.
	263	Ellen Angus - -	13	do. -	do.
	264	John Crawford - -	50	do. -	Brickmaker.
	265	Isabella Crawford - -	26	do. -	Wife.
	266	James Thompson - -	41	do. -	Compositor.
	267	Robert Greig - -	40	2 do. -	Hawker.
	268	Bridget Greig - -	40	do. -	Wife.
	269	Meshack Greig - -	22	1 night -	Hawker.
	270	Isabella Greig - -	22	do. -	Wife.
	271	Thomas Newton - -	36	do. -	Labourer.
Sept. 23 -	272	Thomas Fowler - -	34	do. -	do.
	273	Henry Jones - -	38	do. -	Last maker.
	274	James Townsley - -	24	3 weeks -	Hawker.
	275	Margaret Townley - -	18	do. -	Wife.
	276	Elizabeth Watson - -	37	4 months -	do.
	277	James Cryan - -	50	3 nights -	Gardener.
	278	George M'Dougall - -	33	4 months -	do.
	279	Margery M'Dougall - -	37	do. -	Wife.
	280	Sarah Wilkinson - -	16	4 nights -	Hawker.
	281	Ellen Angus - -	13	do. -	do.
	282	John Crawford - -	50	do. -	Brickmaker.
	283	Isabella Crawford - -	26	do. -	Wife.
	284	James Thompson - -	41	do. -	Compositor.
	285	Robert Greig - -	40	3 nights -	Hawker.
	286	Bridget Greig - -	40	do. -	Wife.
	287	Meshack Greig - -	22	2 do. -	Hawker.
	288	Isabella Greig - -	22	do. -	Wife.

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Date.	No.	Name of Lodger.	Age.	When arrived.	How obtaining Livelihood, and Remarks.
Sept. 23 -	289	Thomas Newton -	36	2 nights -	Labourer.
	290	Thomas Fowler -	34	do. -	do.
	291	Michael Dillon -	47	1 night -	do.
	292	Sarah Dillon -	36	do. -	Wife.
	293	James Quick -	24	do. -	Labourer.
Sept. 24 -	294	John Thompson -	26	do. -	do.
	295	James Townsley -	24	3 weeks -	Hawker.
	296	Margaret Townsley -	18	do. -	Wife.
	297	Elizabeth Watson -	37	4 months -	do.
	298	James Cryan -	50	4 nights -	Gardener.
	299	George M'Dougall -	33	4 months -	do.
	300	Margery M'Dougall -	37	do. -	Wife.
	301	Sarah Wilkinson -	16	5 nights -	Hawker.
	302	Ellen Angus -	13	do. -	do.
	303	John Crawford -	50	do. -	Brickmaker.
	304	Isabella Crawford -	26	do. -	Wife.
	305	James Thompson -	41	do. -	Compositor.
	306	John Elliott -	32	1 night -	Shipwright.
	307	Robert Greig -	40	4 nights -	Hawker.
	308	Bridget Greig -	40	do. -	Wife.
	309	Meshack Greig -	22	3 nights -	Hawker.
	310	Isabella Greig -	22	do. -	Wife.
Sept. 25 -	311	Thomas Newton -	36	do. -	Labourer.
	312	Thomas Fowler -	34	do. -	do.
	313	Soloman Amers -	40	1 night -	Roper.
	314	James Cryan -	50	5 nights -	Gardener.
	315	George M'Dougall -	33	4 months -	do.
	316	Margery M'Dougall -	37	do. -	Wife.
	317	John Crawford -	50	6 nights -	Brickmaker.
	318	Isabella Crawford -	26	6 nights -	Wife.
	319	John Elliott -	32	2 nights -	Shipwright.
	320	Thomas Fowler -	34	4 nights -	Labourer.
	321	Soloman Amers -	40	2 nights -	Roper.
	322	Joseph Bentley -	44	1 night -	Fireman.
	323	Maria Bentley -	33	do. -	Wife.
	324	John Murray -	42	do. -	Tailor.
	325	John Matthews -	46	do. -	Cabinet maker.
	326	Robert Matthews -	18	do. -	Son.
	327	John Matthews -	11	do. -	do.
Sept. 26 -	328	Mary Cain -	37	do. -	Begging.
	329	James Cryan -	50	6 nights -	Gardener.
	330	George M'Dougall -	33	4 months -	do.
	331	Margery M'Dougall -	37	do. -	Wife.
	332	Thomas Fowler -	34	5 nights -	Labourer.
	333	Soloman Amers -	40	3 nights -	Roper.
	334	Joseph Bentley -	44	2 nights -	Fireman.
	335	Maria Bentley -	33	do. -	Wife.
	336	John Matthews -	46	do. -	Cabinet maker.
	337	Robert Matthews -	18	do. -	Son.
	338	John Matthews -	11	do. -	do.
	339	John Murray -	42	do. -	Tailor.
Sept. 27 -	340	Mary Cain -	37	do. -	Begging.
	341	James Raven -	30	1 night -	Labourer.
	342	James Hagan -	48	do. -	Turner.
	343	James Raven -	30	2 nights -	Labourer.
	344	James Cryan -	50	7 nights -	Gardener.
	345	George M'Dougall -	33	4 months -	do.
	346	Margery M'Dougall -	37	do. -	Wife.
	347	Thomas Fowler -	34	6 nights -	Labourer.
	348	Soloman Amers -	40	4 nights -	Roper.

## SUMMARY.

Males of full age	-	-	-	-	70
Females of full age	-	-	-	-	46
Males under eight years	-	-	-	-	Nil.
Females under eight years	-	-	-	-	Nil.
Total number of sick during past week	-	-	-	-	Nil.
No. of sick at present in the house	-	-	-	-	Nil.

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Each day give the names of persons sick, stating nature of complaint.  
All cases of sickness to be reported at once to Chief Constable.

## SWANSEA.

SWANSEA.

Swansea is managed in health matters by the corporation as a board of health. They had formerly the services of an officer of health, but on his resignation some years ago the appointment was not filled up. The services of this officer were much valued, and regret was expressed by some of the inhabitants that the office had been abolished. On looking over the ordinary presentment book of nuisances, it appeared that for six months no action had been taken in any instance of over-crowding or of internal filthiness, while the privies and drains seemed to be sharply looked after. The inspector of nuisances had charge also of the common lodgings. He was ordered to visit the lodgings by night once every week, and occasionally by day, but he was not expected to make any effort to bring all the lodging-houses under registry; indeed the authorities were said rather to discourage night visits to suspected houses. There had been no attempt to enforce the 29th section of the Nuisances Removal Act; the inspector had never seen the Act, and did not know of the existence of this important clause. Occasionally, at intervals, the lodging-houses which had been brought under registry were reminded of the law, and all the prosecutions had succeeded except one, which was ruined by the common opinion held by the bench that weekly tenancy freed the lodgers from the authority of the Act. The last prosecution was in November 1864. The definition of a common lodging proposed here by the local authorities was a place *where low travelling people lodge, or labourers if they pay nightly.*

But, whatever the inspection, the matter was of little consequence, as only 16 houses containing room for 153 lodgers were on the list. The inspector wore uniform, though not on the police force. There were outside sign-boards to the houses. 250 feet of space were demanded, and rooms on the basement, or rooms used as kitchens or sculleries, were forbidden to be used as bedrooms. I visited the houses; they were all let at 3d. a head. The houses were sufficiently built, but the roofs were not often ceiled, and the condition was rather dirty. I examined a few which professed to be private houses and were not under the inspection. The occupier had united Nos. 14 and 15 in Tontine Street into one dirty establishment, in which lived fourteen persons. Mr. Connor in Greenside Street rented a house at 2s. 6d.; in one bedroom lived three adults with two children, in the other three adults with one. In an Irish house of four rooms lived eight persons with one child. In a house let at 3s. 6d. a week, the family, who were two adults with a child, let off a room at 1s. a week to five adults. In another house of four rooms lived six adults with six children, the rent of a room being 1s. 2d. or 1s. 4d. Then,



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SWANSEA.

in Grove Street, I visited a house let at 3s. 2d. a week; there were two bedrooms, but one was dilapidated and abandoned; in the other were two beds. The kitchens had mortar floors, yet each had its bed and family. Another house of one kitchen and bedroom held 11 persons, while others of the same size held nine, eight, and three respectively. These people did not even pretend to be of one family. The present system of inspection hardly grazes the surface, and is of little use. The town in this respect will not bear comparison with Cardiff or Newport. There is a police and parish surgeon already appointed, to whose duties those of officer of health would be but a slight addition as regards cost, but who might effect an immense improvement in the health and comfort of Swansea, if he was authorised to put the law in force against the reception of lodgers in insufficient rooms. The inspector told me that not one cellar was in use as a bedroom.

The following table shows the result of a night visitation made by the police, by order of Colonel Vivian, without selection of houses, but only of streets :—

## BROOK STREET.

Number of House.	Occupier.	Rooms Down-stairs.	Rooms Up-stairs.	Total Number of Rooms.	Number of Inmates.				Total Number of Inmates.	Total Number of Families.
					Adults.		Children.			
					Males.	Females.	Males.	Females.		
2	Mary Screen - - -	1	1	2	1	1	2	3	6	1
3	John Thomas - - -	1	1	2	2	2	1	1	4	1
4	William M'Ferguson - - -	2	2	4	2	2	2	1	4	2
5	Michael Sullivan - - -	2	2	4	1	2	3	2	7	3
6	Thomas Powell - - -	2	2	4	3	3	1	1	7	3
7	Michael Fleming - - -	2	2	4	3	3	1	1	13	3
8	Margaret M'Carthy - - -	2	2	4	3	2	1	1	5	3
9	Edward Welsh - - -	2	2	4	2	2	3	3	10	3
10	Margaret Tracy - - -	2	2	4	1	4	3	4	11	3
11	Timothy O'Conner - - -	2	2	4	3	2	5	1	11	3
12	John Roach - - -	2	2	4	2	1	1	1	3	1
13	Edward Fitzgerald - - -	2	2	4	4	3	1	1	8	2
14	John Dweeney - - -	2	2	4	3	1	3	3	10	1
15	Patrick Earle - - -	2	2	4	2	3	10	1	16	3
16	Paul Archaw - - -	1	1	2	3	1	1	1	4	1
17	Patrick Regan - - -	2	1	3	2	2	1	1	6	2
18	Bridget Donovan - - -	2	2	4	3	3	2	1	9	3
19	Edward Mahoney - - -	2	2	4	3	3	3	4	13	2
20	Jeremiah Cockran - - -	2	2	4	4	3	2	4	13	3
Total - - -		35	34	69	45	43	43	30	161	38

## ANNE STREET.

Number of House.	Occupier.	Rooms Down-stairs.	Rooms Up-stairs.	Total Number of Rooms.	Number of Inmates.				Total Number of Inmates.	Total Number of Families.
					Adults.		Children.			
					Males.	Females.	Males.	Females.		
1	Jeremiah O'Brien	2	2	4	2	3	2	1	7	2
2	Robert Welsh	2	2	4	3	2	1	1	6	2
3	Thomas Welsh	2	2	4	3	4	3	5	15	3
4	James Dalton	2	2	4	4	4	3	2	13	3
5	Timothy Shee	2	2	4	3	4	7	3	17	3
6	Thomas Henshall	1	3	4	1	1	1	2	5	1
7	Jeremiah Shee	2	1	3	1	1	2	4	7	1

## Anne Street—continued.

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On the  
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SWANSEA.

Number of House.	Occupier.	Rooms Down-stairs.	Rooms Up-stairs.	Total Number of Rooms.	Number of Inmates.				Total Number of Inmates.	Total Number of Families.
					Adults.		Children.			
					Males.	Females.	Males.	Females.		
8	Michael O'Conner - -	2	2	4	2	3	3	1	9	2
9	Eugene Callaghan - -	2	2	4	3	4	4	1	12	2
10	Anderston Scorfild - -	2	2	4	2	3	4	3	12	2
11	John O'Brian - - -	2	2	4	3	3	6	2	14	3
12	Jeremiah M'Carthy - -	2	2	4	3	3	-	2	8	2
13	Edward Corbett - - -	2	1	3	1	1	4	2	8	1
14	Robert Coleman - - -	2	1	3	1	3	-	2	6	1
15	John Appleyard - - -	2	1	3	2	1	2	3	8	1
16	James Welsh - - - -	2	2	4	3	4	5	3	15	2
17	John Haley - - - - -	2	2	4	2	3	6	6	17	3
18	Timothy Shee - - - -	2	2	4	2	2	6	-	10	2
19	Michael Sheen - - - -	2	1	3	2	2	3	1	8	2
20	Jeremiah O'Brien - -	2	1	3	2	2	1	1	6	2
21	Daniel Lanihan - - -	2	1	3	3	3	3	3	12	3
22	Timothy M'Carthy - -	2	1	3	2	3	8	5	18	3
23	Martin Sullivan - - -	2	1	3	1	1	4	1	7	1
24	Cornelius Sullivan - -	2	2	4	1	2	3	1	7	2
25	Michael Holy - - - -	2	2	4	3	1	2	3	9	1
26	William Barney - - -	2	2	4	3	3	2	3	11	1
27	Cornelius O'Neale - -	1	2	3	1	1	4	-	6	1
28	James Murphy - - - -	1	2	3	2	1	4	2	9	1
Total - - -		54	46	100	61	67	93	61	282	53

## WINCHESTER.

At Winchester the corporation is the local authority in charge of the health acts. There is an inspector of nuisances, Mr. Newman, who is surveyor to the corporation. As surveyor, he has 85*l.* a year, and as inspector 15*l.* more. He has no private business. He has been much engaged in planning a system of drainage for Winchester, where no main drainage now exists; and as the inhabitants are now about to adopt the Local Government Act, his plans will probably be carried out. The cesspool system prevails, and most of the nuisances he observes are overfull privies. He reports to the pavement commission when he has something important to say, and has only once been compelled to obtain the magistrates' help. The owners of small tenements seem to be willing to conform to what is right, and there are no difficulties in their way, except the absence of drainage. The corporation has done nothing under the Labourers' Lodgings Act, and Mr. Newman does not expect to find any necessity for such action, as the effect of the recent Union Chargeability Act will be, in his opinion, to relieve Winchester of many agricultural families. No medical officer is likely to be appointed. As both bodies were likely soon to be superseded by the local board of health, no inquiry was made as to the exact responsibility of the corporation and the commission respectively in the matter.

Mr. Newman showed an instance, on the North Wall's Ditch, where houses were supplied with drained closets, with short drains opening into a wet ditch or pond, which serves as a general cesspool, large and uncovered. I saw in Burnett's Buildings a privy only 4 feet from the house. A bedroom window was just over it. In College Street, on Mr. Weston's property, there was a closed privy cesspool in the midst of a crowd of buildings. So wet is the land, that water

Want of main  
drainage.

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leaking in through the brickwork forced the ordure out through cracks even into a neighbouring wash-house. At Forder's Buildings and Freeland's Court, although there was a small garden in front, only a few feet intervened behind between the backs of the houses and a high wall. In this small space were crowded the privies and cesspools. All palliative measures were zealously enforced; but these instances serve to prove the necessity of a main drainage.

For the relief of Colebrook Place, a successful application had been made to the magistrates, and the case is a curious one. Two rows of about 10 houses each were set opposite each other in a narrow street with a blocked up end. They contained two rooms on the ground floor and two above. Running along the whole length of the back of one row was a wall as high as the house wall, perhaps 14 feet, and this was built at a distance of only four feet from the houses. Each house had therefore a little yard, about 4 feet by 12, and in this was built the privy and beneath it a cesspool. The ground was wet, and the faecal soil had spread, not only under the whole yard, but under the back kitchens. The magistrates, under the advice of Mr. Newman, ordered the earth to be removed, and a drain carried the whole length of the row, upon which the privies, which were supplied with pans, were set. Fortunately a copious brook was at hand, so high that a considerable stream was poured constantly through the drain. Unfortunately the drain was made of brick, and covered with flags. When Mr. Newman and I called to see it the inhabitants had removed many of the flags, in order to get at the water, and rejoiced in getting brought to their doors what they considered to be at once a drain and a supply of water for washing. There were about 10 closets upon this drain here, being one to each house.

The inspection of common lodgings is part of the duty of the superintendent of the city police. The definition of a common lodging is not here very exact, and is founded on the supposed *grade of respectability* of the lodgers. There are 6 or 7 of them. Some of these houses were barely tolerable; others, particularly Marshall's, were clean and orderly. At one house the keeper refused to limewash, alleging that it was the landlord's duty, a plea with which the inspector should make short work.

The inspector and a sergeant of the police thought there was no crowded district, and I saw no signs of such a thing; but it must be observed that in the Hampshire towns I often heard that people were away from home, perhaps hop picking, who might be expected back in the winter.

## WOLVERHAMPTON.

WOLVER-  
HAMPTON.

At Wolverhampton there has been much discussion on the subject of the weakness of the law in dealing with a variety of cases which come under the cognizance of the local boards of health. Among the matters discussed has been the propriety of some enactment empowering the local authorities to deal with old property, and this with other matters has been presented by Mr. Hayes the town clerk in a circular for the consideration of the various local authorities in the country.\* Mr. Hayes

\* The numerous replies received from various parts of the kingdom show that the evils pointed out by Mr. Hayes are generally felt, and that a comprehensive measure of sanitary reform is thought to be urgently required.



is not disposed to close unfit houses without some compensation to the owner, but he sees all the danger which might attend the giving a price by arbitration or by jury. He proposes another course; to let the justices hear all the facts, view the property, and award such compensation as they consider fair in each particular case. Other gentlemen connected with the corporation thought that the value of the land and of the materials was all the owner had a right to; but it must be remembered that houses may be condemned sometimes for their own badness, when they may be rebuilt; at others for their closeness to other buildings, when the ground plots are valueless except to the owners of adjacent property, who would not be willing to buy with a covenant to abstain from building because they are sure of almost the same accommodation of light and air without purchase. A power to condemn without compensation is practically impossible; for, even if the owner of an unfit house may deservedly be subjected to a penal process, the owner of a good house, ruined by the proximity of a neighbour's premises, must not be made a sufferer.

Thanks to the excellent administration of the Common Lodgings Act by the police under Captain Segrave, there has been no occasion to put in force the 29th section of the Nuisances Removal Act. The Common Lodgings Houses Act is here, as at Newcastle-on-Tyne, so worked as to control overcrowding. Whatever question there may be about the legality of the inspection here, and at Newcastle and Cardiff, and a few other places, it is when boldly worked the most efficient treatment of the evil of crowding. Wolverhampton without it would be almost intolerable. The plan adopted is to register 60 regular tramp houses, and also 300 cottages of the Irish poor, all of whom here as elsewhere receive lodgers. The number is diminishing, the last new entry being dated December 1864, and nearly 200 additional houses having been given up by their licensed owners within the last two or three years. The administration is active also in the other matters of inquiry.\* The officers have been in the habit of affixing notices of unfitness on house doors, threatening penalties on letting them. A sub-committee was appointed to visit and report on such cases, and one lot of poor houses on Caribbee Island being condemned by them on account of smallness and want of ventilation the owner destroyed them. Action has been taken against cellar bedrooms, and bedrooms over privies, as in Gatis Buildings, until very few or none of these nuisances can be found. Houses however exist which were built for workshops, and these with some others were examined, but did not present in any very crying instances the necessity of a power of destruction or closing. One house in King Street was declared to be a nuisance, interference with which was made difficult by its being kept uninhabited. The board does not find lime for white wash, and no system of inspection of the insides of houses was in operation except under the Common Lodging Act. Very few houses were to be let.

The houses which the officers thought the worst in the town were visited. In Golden Cup Yard was the worst case, houses of two storeys standing in an alley 3 to 4 feet wide, the rents about 2s. or 2s. 6d. In Pountney's Fold the alley was 8 feet wide, the houses on one side were three storeys, on the other two. The ground floor of one was measured, and was 11 feet by 9 feet 8, by 8 feet high. The smaller houses were let at about 2s. 4d., the larger, having three bedrooms, were

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—  
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Overcrowding  
dealt with by  
Common  
Lodgings Acts.

Unfit houses  
dealt with.

Inspection of  
town.

\* On the 11th of September 1865 the corporation directed its sanitary committee "to execute the provisions of the Diseases Prevention Act, 1855, and also the Act "23d and 24th Vict. chap. 77."

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WOLVER-  
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3s. There seemed to be no large family. Here was a most sad nuisance. About 2 feet from the well was a ruinous drain whose contents had freely mixed with the well water. Fish washings were recently detected in the drink, and this caused a discovery and a reform. Lowe's houses, consisting of a kitchen and bedroom 11 feet by 8, 6 feet 6 high, were let at 2s. 2d.

The courts in Piper's Row are very insalubrious. In court 7, the houses are about 15 feet high and are of two storeys, a kitchen and bedroom. The alley is only 3 feet 7 inches wide, with a high wall all round, a privy occupying the bottom, and admittance being gained to the court by an entry through a house. In one alley, 2 feet 7 wide, a bedroom over a privy and receptacle has been turned into a workshop. Rents seemed usually high. In Cole's Croft, cots of a kitchen and bedroom, each 10 feet 6 by 9 feet 4, brought 2s. a week, and in Stafford Street houses of one bedroom brought 2s. 4d.; but the inspector hinted that the rents were not usually paid with regularity.



In Cole's Croft and in Caribbee Island are many of the Irish cottages which are on the register of common lodgings. There are hereabout great numbers of single bedroomed houses, which measure only 9 feet by 9, and are let at 1s. 6d., or if with two bedrooms at 2s; many of them were in a very bad state of repair, the windows particularly being damaged. Here the board had induced the destruction of seven houses, and others had fallen down, to the manifest improvement of the condition of the rest. Mr. Morgan the surveyor called attention to a house, one of a miserable row in Canal Street, which was sunk in the ground many feet below a modern raised roadway; the only inhabitant was an old lady. The front was externally 5 feet 4 wide by 8 feet 6 high. Another, though not much bigger, was let at 2s. 3d., and had two bedrooms; the outside front was 7 feet 8 wide and 6 feet 6 high.

The tramp houses were generally creditable to the inspectors, though the houses were old, decrepit, and difficult to deal with. The space exacted was 240 cubic feet; no beds were allowed to be on the ground floor. One house, Row-

ley's was an exception to the good order common here; it was a dirty and untidy back-to-back, without any private yard.

## YORK.

YORK.

At York the corporation as a local board has appointed the chief constable inspector of nuisances and of common lodgings, and an officer, as deputy, makes a systematic inspection. Bedern is the only part of York where are single-room tenements. The corporation has contrived to reduce the number of the large old houses so let, but there

are still some places, much like old barracks, where I saw many houses of single rooms, let at 1s., 1s. 2d., or 1s. 3d. to a number of Irish families. All these rooms were clean and orderly and all had ovens, but there were too many ramifying common passages and staircases for comfort and decency to prevail. Good privies had been built, but community of right of usage had led to a general filthy condition. The constable has orders to look out for instances of unlawful crowding, and to enforce cleansing. For a very long time, however, there had been no prosecutions on these matters. There is no medical officer; and the cost of medical evidence in overcrowded cases is likely to be thrown away, because the common plea of relationship was reported to be accepted against informations under the 29th section. It was said that even common lodging houses once on the register had been withdrawn in consequence of the officials' fear of meeting this pretence.

The definition of a common lodging here hinged on a *nightly occupancy and shifting population*. The police thought all houses which came within their definition were on the register. There had been several convictions under the Common Lodgings Act, and informations when brought to a hearing had never failed on the point of definition. Sixty-seven houses were now on the register; they accommodated an average of about 10 persons each. They were visited daily by the officer, who also made a nightly round "nearly every week." I visited samples of these houses in Bedern and in Water Lane. The price was 3d., and every night was usually charged for. The houses were only of middling quality, and one in Bedern was very untidy. There is an excellent model lodging for males.

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YORK.



## APPENDIX.

No. 3.

*The Rag Trade  
as regards the  
spread of con-  
tagious disease,  
particularly  
small-pox, by  
Dr. Bristowe.*

No. 3.—REPORT by DR. JOHN SYER BRISTOWE on inquiries whether the RAG TRADE is of influence in SPREADING INFECTIONS of DISEASE.

## (I.) DESCRIPTION OF RAG TRADE AND OF RAGS.

The various materials, which for convenience may be included under the general term of "Rags," are imported into Great Britain from almost every known country; they come hither even from Japan, from the Canary Islands, and from the most remote States of South America. But the chief sources of importation are Germany, France, Russia, Italy, Egypt, Turkey, Belgium, and Holland. Foreign rags are received in various proportions at nearly all our ports, but principally at those of London, Liverpool, Grangemouth, Hull, Hartlepool, Newcastle, Grimsby, Leith, Aberdeen, and Teignmouth. Some of them are imported directly for, or even by, manufacturers themselves; but most of them are, I believe, disposed of through the agency of rag merchants. The bags containing them, however, are never opened in the docks; and very rarely are opened or even stored in the rag merchants' warehouses, being almost always transmitted, in the condition in which they have been imported, to those who purchase them for the purposes of their manufactures. Home rags also for the most part pass through the hands of the wholesale rag merchants, who are chiefly congregated in London, Liverpool, Manchester, and Bristol; but before reaching them pass (according to circumstances) through various other hands. Household rags (cotton, linen, and woollen) are constantly collected in small quantities by the innumerable marine-store dealers, who abound, not only in all towns but more or less over the whole country.\* By them they are sorted, and from time to time sold, either to collectors who stand midway between them and the wholesale merchants, or else to these merchants themselves. By the collectors the rags are yet more carefully sorted, so that by the time they reach the wholesale dealers their sorting has been in great measure completed. Rags, however, from workhouses, government establishments, and other places furnishing large quantities are generally sold directly to the rag merchants by tender or by auction; and further, rag-using manufactories in rural districts for the most part deal directly with the marine-store dealers of their neighbourhoods.

The following is a list of the chief kinds of British rags known in the trade:

## (A.) COTTON AND LINEN CHIEFLY.

*Fines.*—Best white rags (cotton or linen).

*Outshots.*—Rags of the same kind, but of inferior colour.

*Seconds.*—Dirty white rags.

*Thirlds.*—Fustians, cords, bedticks, and other strong cotton and linen fabrics.

*Colours.*—Printed cottons.

*Bagging.*—Sacks, &c.

*Canvas.*

*Ropes.*

*Gunny.*—Jute.

\* There are, I believe, a few persons who make a business of collecting rags from dust heaps, washing them, and then selling them at the rag shops.

## (B.) COTTON AND WOOL COMBINED.

*Challies.*—Dresses.

## (C.) WOOLLEN.

*Mixed softs.*—Stockings, rugs, druggets, soft carpets, &c.*Mongoes.*—Old cloth, free from seams.*White Flannel.**Woollen Shirtings.**Seams.*—Seams and button-holes from woollen clothes.*Lands.*—Tailors' waste.

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Most of the above rags have been, as before stated, sufficiently sorted by the time they reach the rag merchants. These latter, however, have to re-sort some of them; and employ workpeople for that special purpose. They employ also a staff of mongoe-cutters, whose duty it is to cut the button-holes and seams out of old cloth clothes, which are thus converted into mongoe; and a staff also of bag makers. Sorters, mongoe-cutters, and bag-makers, (who are generally, if not always, women,) together with packers and other labourers (who are men), comprise all the hands engaged in a rag merchant's establishment. The largest rag merchant in London employs about 100 hands, and one of the largest 28; of whom 20 are engaged in sorting, mongoe-cutting, and bag-making, and 8 act as packers and labourers.

With the exception of such processes of cleansing as rags may be subjected to before they are sold to the marine store dealers, or such further processes of the kind as they may possibly now and then undergo (but certainly as a rule do not undergo) when in the hands of the marine store dealers themselves, no processes of cleansing or of disinfection are applied to rags up to the moment at which they leave the rag merchants, beyond such as are involved in the two or three sortings which they always undergo. One large rag merchant informed me that, to the best of his belief, English hospital rags rarely come into the market—a statement confirmed as to the London small-pox and fever hospitals by information which has been afforded me by the authorities of these establishments. The same probably holds good of most institutions devoted to the care of the sick, where as a rule such articles as would seem most likely to convey contagion (sheets, night-gowns, and the like) are, long before the period at which they are likely to find their way to the rag shop, torn into bandages and otherwise utilized in the service of the sick.

The varieties of foreign rags imported correspond more or less to the varieties of English rags; but those of different countries have all their special designations by which they are known in the market. These are complicated, and except for purposes of trade useless, and need not therefore be enumerated here. Of the details of collection of foreign rags I can give no account; probably indeed there is nothing worth giving an account of. But I believe that at no stage of the proceedings are any sanitary precautions adopted. The only process which they undergo, different from any to which English rags are subjected, is that of powerful compression, in order to reduce their bulk and render them portable. I am informed, however, that sulphur and lime have been occasionally discovered sprinkled amongst them. But while some of my informants consider these materials to have been added for the purpose of disinfection, others assert that they have been added solely to increase weight.

As regards cleanliness, it may be added that rags collected in country districts are, as a rule, cleaner than those collected in large towns (country fines for example are cleaner than town fines), that Irish rags

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are generally very filthy, and that many foreign rags (such as Italian, Spanish, Russian, and especially Egyptian) are often not only dirty, but stink.

(II.) DESCRIPTION OF PROCESSES AND MANUFACTURES IN WHICH RAGS ARE UTILIZED.

The various purposes to which rags are applied are 1st. manuring, 2d. flock-making, 3d. the manufacture of shoddy, and 4th. the manufacture of paper.

(1.) *Manure-making.*

Those rags alone are used for manure which are useless for all other purposes. Many woollen articles were formerly, I believe, thus employed. But at the present time only that mixed refuse comprised in the names of "seams" and "lands" is sold habitually for manure, and this I believe is devoted entirely to the purposes of hop-growing.

(2.) *Flock-making.*

During the American war cotton refuse, which had previously been extensively used in flock-making, got very scarce, and became, in the manufacture of flock for inferior bedding, replaced to a considerable extent by seams and lands. This use of these materials has, I am told, now ceased; and they are again devoted, as they formerly had been, solely to the uses of the hop-growers.

(3.) *Shoddy-making.*

All woollen rags, with the exception of such as are used for the purposes just considered, are converted into shoddy, or something analogous to shoddy. Mixed softs, mongoes, white flannel and woollen shirtings, are all of them pulled to pieces, carded, and thus made into shoddy; are if necessary dyed, and subsequently remanufactured into an inferior kind of cloth. This business is carried on very largely, especially in Yorkshire, by manufacturers who make shoddy alone, and supply with it the woollen manufacturers who abound in the same districts.

There is one variety of shoddy manufacture (to which indeed the term shoddy is not I believe in strictness applicable) which is comparatively of recent introduction, and which presents some points of special interest. It is that variety of it which is concerned solely in the utilization of challies, or articles of dress consisting of a mixture of cotton and wool. It was formerly found impracticable to separate these materials; and since articles containing both were on account of the wool in them useless for paper making, and on account of the cotton in them equally useless to woollen manufacturers, they were regarded as suitable only for manure. But now a small number of manufactories are in existence in which challies alone are dealt with. The processes which are adopted in them are as follows:—

The rags which are brought as usual from the rag merchants in large bags are, 1st. sorted; 2d. ripped or cut into fragments of convenient size; 3d. steeped in a weak solution of sulphuric acid (which, while it leaves the wool uninjured, converts the cotton into a powder, consisting chemically I presume of sugar or of some allied derivative from cellulose); 4th. removed from the acidulated solution, and dried at a tolerably high temperature in stoves; 5th. beaten by machinery so as thoroughly to remove all that powder into which the cotton has been reduced; 6th. washed and otherwise operated on so as to extract any trace of acid that may be left; and finally, carded and



treated in the same way as shoddy from other sources. The amylaceous powder is sold for manure.

I visited one of the largest of these factories, in which from 12 to 20 tons of challies are used up weekly. Exclusive of workpeople engaged in carding (which process was in fact carried on upon other premises), about 70 hands were employed, of whom 12 to 14 were women engaged in sorting rags, 4 were women engaged in ripping rags, and the rest were distributed among the various subsequent processes.

#### (4.) *Paper-making.*

The manufacture of paper in the United Kingdom is, I need scarcely say, a manufacture using up a vast quantity of rags, engaging numerous mills, and providing employment for a large number of the labouring classes. Exact information on all of these points it would probably be impossible to obtain. But I may state that there are in Great Britain and Ireland somewhere about 379 paper-mills, of which 304 are in England alone; that the quantity of paper made weekly at each varies from 70 or 80 tons to a ton (the amount of rags used being about 5 per cent. in excess of the paper manufactured); and that the number of hands employed at each ranges from 4 or 5 to 700. The manufactories are scattered over the whole country;\* sometimes grouped in towns and villages, sometimes buried in remote valleys; but there are certain counties in which they specially abound; such are Lancashire, Yorkshire, Kent, Buckinghamshire, Berkshire, and Devonshire.

The term paper, in its widest sense, includes a large number of manufactured products. Of these the following are the chief: writing-papers, printing and newspapers, drawing-papers, blotting-papers, wall-papers, coloured (fancy) and tissue-papers, papers for packing (such as brown and whitey-brown papers, grocery papers, and the like), mill-board, and papier-maché. Several of the above papers, and varieties of them, have technical names by which they are known in the trade. There are also other kinds of papers which have only a special and limited use; but most of them, as regards their mode of manufacture and the materials of which they are made, come fairly under one or other of the kinds which I have specially named.

\* Distribution of Paper Mills in the United Kingdom, taken from the Paper Mills Directory for 1865:—

<i>England.</i>		Gloucestershire	-	4	Nottinghamshire	-	6
		Hampshire	-	8	Oxfordshire	-	9
Berks	-	Herts	-	9	Shropshire	-	3
Bucks	-	Huntingdonshire	-	1	Somersetshire	-	12
Cambridgeshire	-	Kent	-	36	Staffordshire	-	5
Cheshire	-	Lancashire	-	39	Suffolk	-	1
Cornwall	-	Leicestershire	-	1	Surrey	-	8
Cumberland	-	Lancashire	-	1	Sussex	-	1
Derbyshire	-	Middlesex	-	2	Warwickshire	-	9
Devonshire	-	Monmouthshire	-	4	Westmorland	-	3
Dorsetshire	-	Norfolk	-	5	Worcestershire	-	3
Durham	-	Northamptonshire	-	1	Wilts	-	6
Essex	-	Northumberland	-	5	Yorkshire	-	33
North Wales		-	6	South Wales		-	4
Total England		-	-	-	-	-	304
Scotland		-	-	-	-	-	54
Ireland		-	-	-	-	-	21

Some of the above are not in work, some are half-stuff mills, and some are only nominally mills, that is to say, in several cases two or three mills have combined into one and are still enumerated in the Directory as distinct mills.

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The materials used in paper-making are more particularly all those varieties of rags included in the first division of my list—rags, that is to say, consisting of cotton and of linen, and even of hemp and jute ; but many other materials are also employed, such as fragments of new cotton and linen fabrics (from the bleachers and elsewhere), linen waste and cotton waste (from the cotton and flax mills), paper clippings, and old paper of all descriptions, such even as pawnbrokers' tickets and the minute discs which are punched from postage-stamp sheets, and lastly straw and esparto-grass, or esparto-fibre as it is generally called.

Paper is made either by machinery or by hand. Hand-made papers are still considered to be the best ; and the finest writing-papers and bank-note-papers are generally of this kind. The following is an enumeration of the processes which are followed in the manufacture of the best hand-made papers :—

- 1st. The rags are dusted.
  - 2d. They are cut and sorted.
  - 3d. They are subjected to the influence of super-heated steam.
  - 4th. They are soaked in a solution of caustic lime or soda, and washed.
  - 5th. They are bleached with chloride of lime and again washed.
  - 6th. They are reduced to a pulp, and during the process of reduction any colouring matter that may be needed is added.
  - 7th. The prepared pulp is received into a vat, in which it is mixed with a sufficiency of water, and kept in constant movement so as to render the contents of the vat of uniform density.
  - 8th. A layer of this pulp is removed from the vat on a frame ; and after the excess of water has oozed away is placed between two layers of flannel. This process is repeated until a pile of alternate layers of pulp and flannel has been made.
  - 9th. The pile is next subjected, two or three times successively, to heavy pressure ; subsequently the sheets of paper are removed and dried separately in the air.
  - 10th. The sheets are then dipped into prepared size, and are again dried by exposure to the air.
  - 11th. They are then placed singly between sheets of zinc or copper, and are again exposed two or three times successively to great pressure.
- Lastly. The sheets of paper are sorted ; any flaws there may be are as far as practicable removed ; and imperfect or spoiled sheets are thrown aside.

The use of machinery necessarily modifies some of these processes. But since it modifies only some of the later processes, while it is the earlier ones alone that are of interest in connexion with the present inquiry, it is needless to point out the nature of these modifications. I propose, however, to describe in detail those preliminary processes which are attended with risk of contagion.

The rags, which are purchased as circumstances offer, are for the most part kept in quantity in a warehouse, and, as they are required, are removed thence for use. An important preliminary in the preparation of rags is the process of dusting, by which is removed from them, not only that extraneous dirt which they always contain, but much of the animal filth which has become incorporated with them while in use. In some of the larger mills this is the very first process which the rags undergo after their removal from the bags in which they are stored. In this case the rags are put whole into a kind of large cylindrical sieve, in which they are made to revolve, and are beaten by machinery

until they have been sufficiently cleansed. In many mills, on the other hand, the dusting is effected after the rags have been cut and sorted. One very great advantage of the former plan is that by it the rags, prior to being placed in the hands of the rag-cutters, are deprived of much of that which is likely to be offensive in them; and that the rag-cutting-room, which is always a dusty and not agreeable place, is rendered much more cleanly and sweet than it would otherwise be.

The process of rag-cutting and sorting is a very important one in most paper mills, and especially in those in which white papers of superior quality are made. In such mills, the rags require, not only to be carefully cut, but also, as they are cut, to be intelligently sorted. And the process occupies, therefore, a proportionately large number of hands, one third or one half, it may be, of the total number of hands employed. But in mills where brown and other low-class papers are made, and in those where mill-board and papier-maché are manufactured, little or no selection is required; and the mere cutting (which is in all cases essential) is done in great part, or even wholly, by machinery. So that in fact, sometimes in a large mill of this latter kind—a mill yielding from 10 to 30 tons of paper a week—not more than two or three hands are engaged in the preparation of rags.

The rag-cutting is always carried on in a special and distinct part of the mill; and those who are engaged in it (excepting only in a few very small mills) devote themselves wholly to this occupation. These are mostly women, from the age of 15 or 16 upwards. A few boys are sometimes employed. The hands comprise of course large numbers who have taken to rag-cutting for a short time only; but also a considerable number of persons whose whole working life has been devoted to the business. Some of these have worked 10, 20, 30, and even 40 years continuously. These old hands appear to me to be most common in mills situated in rural districts. The rag-cutters work for the most part in a large room or rooms, which of course vary much in their size relatively to the number of occupants, and vary much in their ventilation, in their other arrangements, and generally in their suitability for the purposes to which they are applied. They are always dusty, and always have a more or less musty if not more offensive smell. They generally, however, appear to me to be fairly ventilated.

Each rag-cutter, while at work, stands at a board with a knife fixed in it in front of her vertically, with the cutting edge forwards, provided on the one hand with an adequate supply of rags, and on the other with a kind of bin furnished with compartments, into one or other of which she throws, according to their character, the rags as she cuts them.

There are generally a number of female overlookers, proportionate to the number of cutters employed; and, very generally, a foreman of the rag department, who superintends all the rag arrangements. To give a notion of the number of hands employed in rag-cutting in large mills, I may state that at Mr. Joynson's mill (the largest mill in Great Britain engaged in making writing paper by machinery) there were at the time of my visit 250 rag-cutters. But I was informed that 350 persons are often employed there in this work; and that, additionally, there are in France a number of rag-cutters who prepare rags specially for the purposes of this mill.

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### (III.) INTRODUCTION OF INFECTIOUS DISEASES into PAPER MILLS and elsewhere by means of RAGS.

The circumstances which gave origin, I believe, to the inquiry which I was directed to make, were two complaints made during the last few



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years in reference to outbreaks of small-pox in country districts, which were believed by the complainants to have had their origin in the rag departments of paper mills. The first of these complaints had reference to an outbreak of smallpox in 1858 at Wraysbury and Colnbrook; the second had reference to a similar outbreak in the summer of 1864 at Thetford in Norfolk. The first of these complaints was investigated at the time by the direction of the medical officer of the Privy Council, and the result of the investigation was to leave it uncertain whether the disease might not have originated outside and been altogether independent of the paper mill to which it had been attributed. The second of these complaints was investigated by myself in the course of the present inquiry, and the result was to establish to my own satisfaction that the disease had really been introduced into the town by rags used at a paper mill there. The inquiry, however, was not to be limited to paper mills, but to embrace as far as possible all occupations which are concerned with rags; nor to smallpox, but was intended to include in its scope the influence of rags in disseminating all forms of infectious diseases. I may state, however, that I soon found it desirable to limit my inquiries as much as possible to paper mills, and to make smallpox the test of the spread of infectious maladies.

I made inquiries at about a dozen rag merchants and a score of marine-store dealers in London. I inquired of the principals at these places, and I inquired of the workpeople, but I failed altogether to obtain any evidence that infectious diseases had been brought to them through the agency of rags, or that any fear prevailed among them on the subject.

I made inquiries also in London, at the only manufactory there in which chollies are utilized; and here again I obtained no sort of evidence of the introduction by this means of infectious disease among the workpeople. It seemed to me quite unnecessary to prosecute investigations among the shoddy manufacturers, and still more unnecessary to do so among flock makers and those who make use of rags for manure. My inquiry at paper mills, however, was somewhat extensive; and I made it so, partly because I regarded that as the main object of my commission, partly because at these places are used those rags which as it seemed to me are most likely to carry contagion, and partly also because many of these paper mills are situated in rural districts, remote from towns, and hence any outbreak of contagious diseases among their workpeople seemed likely to prove comparatively easy of investigation. I made a point, therefore, of visiting a considerable number of mills occupying country sites, although I did not visit such mills exclusively; and finding it altogether impossible in the time at my disposal to visit anything like all paper mills, I still thought it desirable that my inquiry should embrace the paper mills of many districts. I visited 86 mills scattered in different parts of England, but principally in the counties of Kent, Berkshire, Buckinghamshire, Devonshire, and Lancashire. At most of these I was received with great civility, and every facility was given me for ascertaining the truth; at some, although I was treated with equal civility, there was a little reserve in the way in which my inquiries were met. At one only was I denied admittance into the rag house.

In all cases where it was possible for me to do so I made inquiries of the mill owner or partners resident on the spot, of the manager of the mill, of the foreman of the rag department, and of those engaged in rag cutting; and whenever there seemed any clue to learning the details of any important fact bearing on my inquiry, I endeavoured so far as I

could, or so far as seemed useful, to follow that clue. The chief details of my inquiries are given in the supplement.\* I may state generally that the principals and the managers professed for the most part to be ignorant of cases in which smallpox or other infectious diseases had been introduced among the workpeople by means of rags; that in the majority of mills which I visited the workpeople appeared to have no dread of the rags on which they were engaged, and so far as I could learn had no knowledge of outbreaks of disease traceable to this cause; that in a minority there was on the other hand a tendency among the workpeople to attribute infectious diseases to rags. I may state further that in most mills I heard that workpeople had had smallpox while working at the mills, but that I have omitted from the supplement, and indeed omitted generally from my own notes, those cases in which it was both believed by the workpeople and obvious to me that the disease had been contracted outside the mills; that I have recorded there, however, all the cases in which workpeople themselves believed that the disease which they had contracted had been due to rags, and I have recorded them with such details as I could extract from my informants, some strengthening the probability of the truth of their belief, others detracting from it, or destroying it altogether.

In the aggregate, the evidence adduced in the supplement seems to me to show that smallpox and other infectious diseases are very rarely introduced into paper mills by rags, but to show at the same time that their introduction is possible, and even occasionally takes place.

If we were to take the evidence of some half a dozen selected mills we might well suppose (as well from the general belief of the workpeople themselves as from the imperfectly but honestly related and suggestive facts which I have quoted from them) that smallpox was of frequent occurrence in paper mills as arising from rags. But when we find that in half a dozen other paper mills, with an equally long experience, using the same quality of rags, and apparently similarly circumstanced in almost all respects, no evidence whatever of the introduction of smallpox, and such like diseases can be obtained; the contrast naturally creates the suspicion that the difference may be in part due to the circumstances that, at one mill there has been a habit of referring all attacks of smallpox to rags, in another of attributing them to causes external to the mill; and, at all events, renders it more important than it might otherwise have seemed to be to test the quality of the evidence in support of the introduction of smallpox by means of rags. Now it must be confessed that the quality of the evidence which I have collected is not very good; much of it relates to occurrences which date many years back, and rests on the unconfirmed statements of persons whose evidence on most matters would be received with caution; some of the statements seem to contain their own refutation; again, some of the recent cases in which smallpox has been referred by the mill hands themselves to rags have seemed, on further examination, to have had a different origin. The latter fact renders it probable that many of the smallpox cases, which have been affirmed very

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\* The supplement which accompanied this report, and to which reference is here and subsequently made, contains a list of all the paper manufactories which were visited, together with certain details in regard to the numbers of workpeople engaged, the kinds of rags employed, and the character of papers produced, severally at each. It comprises also all the evidence which was procured as to the occurrence of epidemic diseases among the workpeople. The nature and effect of that evidence is sufficiently indicated in the text; but the supplement itself, which is of considerable length, it has not been thought necessary to print *in extenso*. [I subjoin such extracts from it as seem of most positive interest.--J. S.]

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positively to have been traced to rags in by-gone years, might (had they been investigated at the time) have been traced to other sources. Still some of the cases which will be found in the supplement carry with them an air of truth, and it scarcely seems possible that all of them have been misunderstood by those who have detailed them. A few in fact were investigated at the time of their occurrence. The outbreak of smallpox at Thetford in Norfolk last year seems to me to be clearly traceable to rags employed in a paper mill there. I may add that I got no evidence whatever of the conveyance by rags of any other form of infectious disease; and that, as regards the mills in Lancashire, where especially many Turkey and Egyptian rags are used, diseases peculiar to those countries have never been introduced through their agency.

How is it (it may be asked), if infected rags are capable of carrying contagion, that diseases are not more frequently conveyed by rags than seems to be the case? First, I doubt whether hospitals and other institutions treating infectious diseases ever do sell (I speak of this country particularly) their "infected" rags to rag dealers. I doubt too whether it be not exceptional thus to dispose of distinctly infected articles even in the case of private households. That the contrary does occur at times in the latter case I do not of course doubt. Next it is certain that before rags reach paper mills they have been for the most part exposed in various ways to the atmosphere, have been sorted and re-sorted two or three times, and have thus necessarily lost some of the deleterious qualities they may have originally possessed. Further, the preliminary dusting which rags undergo in the large mills must again tend to deprive them of any infection which they may have retained. Lastly, it is only during the preliminary stages of paper making that any degree of danger can possibly exist; for, no sooner are the rags cut, than they are boiled, and subjected to chemical agencies, and thus necessarily rendered altogether innocuous.

There can be no danger at the docks, where rags are never removed from the bags in which they are imported. There cannot, I fancy, be a great deal of danger at the wholesale rag merchants,—not danger, that is to say, commensurate with the bulk of rags in store,—for only a small proportion of the rags are sorted on their premises, and these are chiefly old cloth clothes, which pass there through the hands of the mongoe cutters. The chief danger, one should suppose, would be incurred by the rag collectors, and especially by the retail rag dealers, who are brought into contact with the rags, who sort them, and even live among them, while they are yet fresh. Such persons, however, have the buying of the rags from those households that have them to dispose of, and from other sources; and it rests with them to buy or to decline to buy rags which are foul or impregnated with noxious matters; and I believe that they do sometimes exercise such a discretion.

## (IV.) PRECAUTIONARY MEASURES.

Even if it had been shown that infectious diseases were frequently disseminated by means of rags, it would have been difficult to suggest a remedy which should be at the same time efficient and practicable. On this question I made a point of ascertaining the opinions of those practical men who were disposed to enter upon the subject with me; and I learnt nothing from them but the difficulties which would attend the application of any remedy. It is obvious indeed that the proper stage at which rags should be disinfected is that prior to the disposal



of them to the retail rag dealers ; and that disinfection applied at any subsequent stage would leave all the persons engaged on the rags antecedently to that stage wholly unprotected. It might be, and indeed should be, made a misdemeanor for any one to sell or knowingly to buy rags which have been used about persons suffering from infectious diseases, unless they have been previously washed or otherwise disinfected ; though it would doubtless be a difficult matter to convict any one of the offence. And again, since it seems, as might have been supposed, that small-pox is the form of infectious disease most likely to be carried by rags, it would be desirable that those workpeople who are engaged among rags in paper mills and elsewhere (but especially in paper mills, where the workpeople are frequently young) should be examined as to their vaccination or be re-vaccinated at their entrance upon these occupations. I must acknowledge that, excepting these two measures, I see no practical means of dealing with the matter ; the use of disinfectants, or of any process for purifying rags, either at the rag merchants or in the mills, would be attended (so far as I can ascertain), not only with great inconvenience, but with considerable expense ; and any such addition of expense, in the present condition of the rag and of the paper trades, would be in a high degree injurious to these branches of industry.

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#### EXTRACTS FROM SUPPLEMENT TO REPORT.

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##### MACKAY AND WATSON, THETFORD MILLS, NORFOLK.

In July 1864 an epidemic of small-pox commenced in Thetford, and lasted there 6 or 7 months, causing during that time 16 or 17 deaths. There had been no small-pox whatever in the village for some years previously. The first cases occurred in a low locality called Church Row, and altogether in that row 32 cases of small-pox broke out. It spread from this row over the town. There is no doubt, I think, that the first cases which occurred were those of two women named Clark and Back, who were engaged together in cutting up some foreign rags. The disease appeared in these on the same day (although they were not living together), and they applied for advice on the same day to Dr. Minn, the parish surgeon. The next case was that of a boy named Diver, working in the engine-room of the mill, but having communication with the rag workers. He had it about a week after Clark.

In confirmation of the above statements I append the following evidence :—Dr. Minn, the surgeon of that part of the parish in which Church Row is situated, says distinctly that the two women, Clark and Back, applied to him with the disease on the same day ; that these were the first cases he had seen, and he is sure that they were the first cases in the town, and that all the early cases of small-pox came under his own treatment. Mr. Smith, the Registrar and Relieving Officer, says that the first case which applied for parochial relief in consequence of small-pox was that of the woman Clark, and that hers was the first death. After that the applications for relief became very frequent, and the deaths also became numerous. He says that the next case after that of the two women was the boy Diver. He has no doubt whatever that the

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first cases of small-pox in the village were those quoted above. Mr. Bartlett, the Chairman of the Board of Guardians, is equally satisfied on the latter point. The forewoman of the rag department, Mrs. Nicholls, says that in July 1864 Clark was attacked with small-pox, and two other women (Back and another) working with Clark had a slight rash which she does not believe to have been small-pox. Clark lived in Church Row, and the disease spread from her to Mrs. Nicholls's own children and to many others in the row. Mrs. Nicholls acted during the time as a nurse to the sick in this locality. Says that 32 in all were attacked there, and that of these cases that of Clark was the first.

Several persons to whom I spoke expressed the belief that the disease had not originated in the mill, and that other persons outside had had small-pox previously, but I learnt no facts confirmatory of this view.

## PEWTRESS &amp; Co., Eashing, Godalming.

Mrs. Hill has worked here 20 years. Says that 4 years ago her husband was cutting a bed tic. She remarked at the time that it had an offensive smell, and suspected small-pox. About 3 weeks afterwards her husband was attacked with small-pox. There had been none in the neighbourhood previously. Mrs. Hill's daughter caught the disease at the same time, and presumably from the same rags. The disease extended from these to a neighbour, but no further.

Mr. Barnard has worked here 27 years. Caught small-pox 25 years ago. At that time he opened a bag which had a disgusting smell, and 14 days afterwards, or thereabouts, had an eruption of small-pox upon him. He recognized the same smell in himself while the scabs were falling off that he had previously recognized in the bag. The offensive article was a woman's gown. There was no small-pox at the time in the neighbourhood, or for many miles round. His mother caught it from him, but it spread no further. Mr. Barnard states that he recollects two other cases in which small-pox originated (it was believed) in rags; the cases, viz., of Eliza Woods and Mrs. Lillywhite.

Eliza Hardy has worked here 9 years. Caught small-pox 7 years ago. She had been cutting up a piece of canvas which had an offensive smell, and was consequently taken away, and thrown into the river. The small-pox appeared 4 or 5 weeks afterwards. A Mrs. Young and a Mrs. Nash were working among the rags at the same time, and about the same time took small-pox. A little boy in the village took it from them, but it spread no further. No small-pox had existed in the neighbourhood previously.

Mrs. Mandeville has worked here 25 years off and on. 19 years ago she took small-pox, which she attributed to some London seconds which had a bad smell. Three days after cutting these the rash appeared. No small-pox had existed in the neighbourhood of the mills previously. One of the rag cutters seems to have caught the disease from her, and the disease spread to several persons outside the mill.

Ann Kemp has worked here 7 or 8 years. Had small-pox 5 years ago, which she believes she caught from coloured rags. These smelt foul. The rash came out 4 days after cutting the rags. There was no small-pox at the time in the neighbourhood, and it did not spread.

Mr. Bailey says that his sister (a rag cutter) caught small-pox about 18 years since, which was believed to have been caused by rags. There had been no small-pox in the neighbourhood.

Mrs. Tickner says her mother caught small-pox here 15 or 16 years ago, and that Mr. Tickner took it from her.

Most of the women who had worked in the mill for some years recollected and confirmed in essential points the above statements.

#### T. H. SAUNDERS, Rye Mill, High Wycombe.

Styles (a female rag sorter) says that about 14 years ago she caught small-pox at the Beech Mills. Believes she took it from the rags. She was cutting "fines." They had a bad smell, and in less than a month afterwards she had the disease. There was no small-pox in the village at the time, and it did not spread from her.

This statement was confirmed by several of the hands working now at Beech Mill, with the exception that they assert that the disease did spread to others from her.

Saunders (a female rag sorter) says she took small-pox 5 years ago at the Temple Mills, Marlow. Four others had it about the same time. All five were engaged together upon some dirty London rags, and all had the disease within a short time of one another. She says that she had it 2 weeks after cutting the rags, and that the one first attacked had it a week before her. There was no small-pox in the village at the time.

#### B. BROWN, Hampton Mills, Tunbridge.

Mrs. Hayes has worked here 35 years. Says that 19 or 20 years ago she was cutting up rags in which she recognized the smell of small-pox, and that 2 or 3 weeks afterwards she took small-pox. There was no small-pox in the neighbourhood at the time; but 2 or 3 weeks after her seizure her children took the disease. She adds that the rags on which she was engaged were coloured rags from Tunbridge Wells, where small-pox was prevailing at the time.

#### W. MONCKTON, Basted Mills, Wrotham, Tunbridge.

Mrs. Holland has worked in these mills 14 years. Six years ago she was attacked with small-pox which she attributed to some London seconds which she was then cutting up. Eight other cases broke out subsequently in the mill. She says the only case of small-pox in the neighbourhood which preceded hers was that of Henry Styles, a carrier. He had it, or died of it, a week or two before she took it, but he lived three quarters of a mile away, and she had had no communication with him.

Mr. Monckton says, that last year a girl (a rag sorter) caught small-pox. Two other cases of small-pox followed. The small-pox was believed by many at the time to have been caused by rags; but the matter was investigated, and it was clearly ascertained that the girl first attacked took the disease from nursing the illegitimate child of one of her fellow workers, the child having been brought to the mill from a house in which small-pox was raging at the time. Dr. Monckton of Maidstone and the parish surgeon were both satisfied upon this point.

Mary Somers caught small-pox 4 years ago last March at the East Malling Paper Mills (near Maidstone) from foreign rags which were very offensive. Small-pox came on about a month afterwards, and spread from her to 3 or 4 others, of whom 2 were workers in the mill. There was no small-pox at the time in the neighbourhood.

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## H. ALLNUTT, JUNR., Chilworth Mill, Guildford.

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Mrs. Ware has worked here and at an adjoining mill 23 years. Says that about 15 years since her niece, who was working among the rags in a neighbouring mill (now still), caught small-pox. She was the first in the locality who had it; and about 2 weeks before was handling a filthy piece of rag which she suspected of being infected. The disease spread from her to one or two others. Mr. White (the manager) says that his mother believes that she took small-pox from rags many years ago in a mill not now in existence.

## WARREN BROTHERS, Stanford Mill, Liphook.

The Messrs. Warren state that about 12 years ago the servant of one of them caught small-pox, which they had no doubt was caught by washing some rags obtained from the mill. There was no small-pox at the time in the village. With this exception, no evidence of any importance that small-pox had arisen from rags in these mills was obtained.

## H. COLES, Wokey Mills near Wells.

Mr. Coles, the proprietor, says that Mr. T. Dewdney (a cousin of the Dewdneys, at Stoke Cannon Mill) caught small-pox some years ago at the Hele Mills (before they belonged to the present proprietor, Mr. Collins); that the matter was inquired into at the time by two or three medical men from Exeter, and that it was established that the disease was caught from the rags.

## PERCY IBOTSON, Poyle Mills, near Slough.

Warden, a female rag sorter, says that in 1851 she and another were working at the same lot of rags (some ill-smelling country seconds), and about 10 days afterwards both of them were seized with small-pox. She says that there was no small-pox previously either in the mills or in the village; but that it spread from them to others. Above case confirmed by women now working at Wraysbury.

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No. 4.—REPORT by DR. GEORGE BUCHANAN on EPIDEMIC TYPHUS at GREENOCK.

No. 4.  
On Typhus at  
Greenock, by  
Dr. Buchanan.

Site and  
Climate.

Population.

Greenock is a town and burgh situated on sloping ground, between the Clyde on the north and a range of hills on the south. Its climate is probably the moistest of the large towns in Great Britain, but its temperature fluctuates within a smaller range.

In 1851 the population of Greenock was 37,436, and in 1861 it had increased to 43,894. For 1864 the population is estimated by the Registrar General at 45,829, but by all local statisticians it is assumed to have increased more rapidly than before, and to have reached 50,000 at the least.

Greenock consists of three parishes; the east, mid, and west. Parts of the east and west parishes, and the whole of the mid parish, are comprised in the "old town." Other parts of the east and west parishes are suburban or rural, and are inhabited by a better class of people than the dwellers in the old town.

Ship building, iron works, and sugar refining are the staple industries of Greenock. Considerable increase in each of these trades has taken place since the census of 1861.

The town is governed by the provost, magistrates, and town council. Under the Local Act of 1840 authority in matters of police and public health is vested in the water and police trust. The sanitary laws are administered by a nuisances removal committee of this trust.

The sanitary officers of the town are, a master of works, whose department embraces the paving of streets, the sewerage, and water supply of the town, and a sanitary inspector, who attends to the courts and houses, to the removal of nuisances, and to the registered common lodging-houses. There is no medical officer of health, but when proceedings are taken under the Scotch Nuisances Removal Act the requisite certificates are obtained from the parochial medical officers.

[The law of Scotland defines a lodging-house to be "a house or part thereof where lodgers are housed at an amount not exceeding 3d. per night for each person as well as entire houses occupied as "common lodging-houses." For the prevention of overcrowding in these houses special provision is made. But against overcrowding in other houses the only provision of the Scotch law is a clause in the Nuisances Removal Amendment Act (25 & 26 Vict. cap. 101) an Act which does not apply to any place unless the inhabitants have formally "adopted" it: and it has not been adopted in Greenock.]

The laws for the relief of the poor are administered by a committee of management of the parochial board. This board is not the authority in any sanitary matter.

Of the eight principal towns of Scotland whose mortality is examined by the Registrar-General in his monthly reports, Greenock is the one which has the highest general mortality when a number of years are taken together for comparison. Its death-rate is stated at 30·9, 25·4, 30·7, 41·4, 42·0 in the past five years, or correcting the last two figures according to local estimates of the then existing population, the death-rate was 39·0 in 1863, and 38·0 in 1864.

The excessive mortality is largely due to the deaths of children who are produced in Greenock in remarkable numbers, the birth-rate actually reaching 52 per thousand in 1864. It is also due in great measure to a special fatality of lung diseases and consumption. And, thirdly, the contagious diseases have caused in almost every year an excessive proportion of deaths. Not fever only, but measles, scarlatina, smallpox, and diphtheria, have prevailed epidemically in Greenock within the last few years, and each of these diseases has affected that town with exceptional intensity.

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Greenock, by  
Dr. Buchanan.

## Fever.

Typhus fever appears to be always present in Greenock. After the serious epidemic of 1847, when it is stated to have killed 353 persons out of a population of some 36,500, fever became less prevalent, but seems never to have quite disappeared. Its recent fluctuations may be judged of from the following table, where the mortality from fever in the other chief towns of Scotland is also given.

	Population.		Actual Number of Fever Deaths.						Fever Death-rate per 1,000 Residents.	
	1861	1864	1860	1861	1862	1863	1864	Mean of 3 Years 1860-62.	Mean of 2 Years 1863-64.	
		Reg. Gen.								
Glasgow -	395,503	415,423	403	478	523	670	1,084	1·18	2·10	
Edinburgh -	170,444	173,081	108	113	142	187	202	·71	1·12	
Dundee -	91,664	95,153	110	87	62	109	159	·94	1·41	
Aberdeen -	73,900	74,476	57	59	65	129	256	·82	2·85	
Paisley -	47,427	47,427	39	37	61	52	96	·96	1·56	
GREENOCK -	43,894	45,829*	19	57	63	98	274	1·06	4·04*	
Leith -	36,029	37,169	35	15	37	88	50	·80	1·85	
Perth -	26,094	26,520	21	15	32	40	82	·85	2·30	

For the sake of comparison it may be stated that the figures corresponding to the last two columns of the above table are for London 0·80 and 1·17, and for Liverpool 1·19 and 3·45. It will therefore be seen that for its population Greenock has lately suffered more than other towns where typhus has also been epidemic, and as far as is known more than any other town in Great Britain.

## Nature of fever.

Although other forms of continued fever are comprised in the figures of the foregoing table, it is essentially to typhus proper that the high fever mortality of Greenock is due. This is proved by the following statistics of the Greenock Hospital for 1864-65, which also show the progress of the epidemic in each month since it has attained its recent extensive proportions.

## Progress of fever.

## FEVER CASES ADMITTED in 1864-5.

Month and Year.	Typhus.	Continued Fever.	Typhoid.	Febricula.
January 1864	12	5	—	3
February "	30	5	2	—
March "	29	4	1	1
April "	47	7	2	3
May "	66	3	1	7
June "	50	2	—	3
July "	45	6	1	1
August "	54	20	—	2
September "	83	18	—	3
October "	114	14	1	3
November "	133	22	1	2
December "	142	18	—	2
Total in 1864	805	124	9	30
January 1865	107	45	2	—
February "	95	31	—	—
March "	95	22	2	1

\* But if the estimate of 50,000 be taken for the population of Greenock, the recent death-rate becomes 3·72, still beyond the fever mortality of other towns, and being approached by Liverpool only.



It will be observed from this table that the epidemic is now subsiding.

There is nothing specially to be noted in the character of the typhus itself. No case is put down in the records of the hospital as typhus unless it has the characteristic rash.

The mortality of the cases thus entered on the hospital books was 19.0 per cent. in 288 cases taken for examination in 1864. Distributing the mortality, as it is always important to do, according to ages, the following death-rates are found. They probably represent an average degree of fatality when it is remembered that no case was entered as "typhus" unless it had rash.

## APPENDIX.

No. 4.  
*On Typhus at  
Greenock, by  
Dr. Buchanan.*

Characters of  
the typhus,  
and its mor-  
tality.

Typhus with Rash.*	0-10 Years.	10-20	20-30	30-40	40-50	50-60	60-70	72
Number of cases	20	83	102	37	31	9	5	1
Deaths	1	7	16	8	13	6	3	1
Per-centage of deaths	5.0	8.5	15.6	21.5	42.0	66.6	60.0	100.0

Typhus has been very widely distributed through the town of Greenock. Although a great many cases have occurred in the less densely populated parts, it is in the old town that it has been intensely epidemic. Subjoined is shown the incidence of fever upon the three parishes; one column showing how many cases were taken into the infirmary from each parish, and the other column showing the deaths that occurred among residents of each parish; the infirmary deaths being referred to the locality whence the case was brought. The excess of fever is strongly marked in the mid parish, which is wholly poor and crowded, above the other two, which have better class houses and population as well as poor parts.

Distribution  
of typhus.

Town of Greenock, 1864.	Cases treated in Fever Wards.		Deaths from Fever in Infirmary and Houses.	
	Number.	Per 1,000 Residents, 1861.	Number.	Per 1,000 Residents, 1861.
East Parish	167	15.0	57	5.1
Mid Parish	407	43.7	93	10.0
West Parish	372	17.2	119	5.5

In ordinary times, and at the beginning of the present epidemic, the fever affected the poorer classes only, persons of the tradesman class and above it being seldom attacked. But since the accession of epidemic force experienced in the autumn of 1864, no class has been exempt, and

Classes  
attacked.

\* This table cannot be relied on, in one way, to show the number of persons attacked in Greenock at different ages, inasmuch as the slight cases of this disease in young children would often not be sent to hospital. But it has interest as showing the number of persons attacked beyond the age of 30. This may result partly from the recent influx of labourers consisting largely of young men under that age. But also it results, no doubt, from the susceptibility to fever being less in the older portion of the community through so many of them having had the disease in previous epidemics.

**APPENDIX.** the disease has been fatal to many well-to-do persons, who were not directly in attendance on the sick. It has been noticed here as in other places, that when people in the better ranks of life have been attacked, the fever has presented more serious characters.

**No. 4.**  
*On Typhus at Greenock, by Dr. Buchanan.* Five medical men have been attacked by typhus in the last six months, and every one of them has died. The inspector of poor was also cut off by the fever. There has been no typhus among the inmates of the poor house.\*

**Causes of the fever.** The cause of the great epidemic prevalence of fever in Greenock is essentially the one condition of overcrowding, and together with it the dirty habits of the people. Probably from what we know of this fever, little or no influence is to be ascribed to defects of drainage, but of this something will have to be said, and in the present epidemic exceptional destitution is wholly wanting as a causative element.

**Overcrowding** Overcrowding requires consideration, first, as it signifies packing together of dwellings too closely upon area and bad construction of dwellings; secondly, as it signifies huddling of persons into too confined rooms with deficient admission of air.

**of houses upon area.** The crowding of tall dwellings upon small areas is carried to a most remarkable extent in Greenock. It must be premised that the system prevails here, as in other towns of Scotland, of constructing dwelling-buildings with a common stair, from which separate rooms or sets of rooms lead off. These rooms or sets of rooms are called "houses," and the whole pile of houses is called a "tenement" or a "land." In the old town the houses are so closely packed that every particle of ground (that is not street) is covered with buildings. Some air trickles between the tops of the tenements and may get into the upper houses, but in not a few of the lowest houses the back rooms receive no breath of air or ray of light. In describing this state of things a local pamphlet states, with hardly an exaggeration, that the rain has not room to fall from the roofs.

**Construction of houses.** A house in the poor quarter may consist of only one room that serves for all purposes, and then generally has a recess in the wall in which laths are placed to carry a bed; or it may consist of one or two rooms opening out of a kitchen, all of them being usually provided with bed recesses in their walls, and having other beds in the room.

The windows are commonly very small, and some rooms and sleeping places have no windows at all and are utterly dark.

In many ground-storey houses the floor is formed by the bare earth blackened by filth; in others a scanty boarding is laid directly upon the earth. The ceilings are generally very low, and some attic rooms are inhabited where a man can only stand upright in the middle.

Houses, of which the rooms are such as these, are piled one over another, three or four high, and two or more, up to six of them, lead off the common stair at each floor. Under no circumstances could they possibly be ventilated. A little air approaches them from the narrow front street or from the rift between two high tenements; but even when the window-sash is taken out, the air has barely power to freshen the atmosphere of the room it first enters, and is wholly incapable of penetrating into the closets and places where the people sleep.

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\* From Her Majesty's guardship on the Clyde, besides several cases of smallpox and measles sent in 1864, three persons were transferred to hospital with typhus in November and two others since the end of 1864. But the disease appears to have been contracted in the town and not to have spread in the ship.

There are in the mid parish of Greenock 9,414 persons upon 20 acres, being 470 persons to the acre, or at the rate of 300,800 to the square mile. This is almost as dense a population as in the most crowded parts of Liverpool, and considerably denser than in the poorest parts of London. Parts of the mid parish are even more crowded than these figures represent.

The overcrowding in the houses of the working population will be further understood by the marvellous statistics that follow; they were compiled as the result of visits made in 1862 into localities which were held to represent fairly the average (and not the worst only) of the accommodation for the working men in Greenock.

#### STATISTICS of Workmen's houses in Greenock 1862.

Cubic Feet for each individual Occupant.	Number of Apartments.	Number of Families.	Number of Lodgers.	Number of Occupants.
Under 50 cubic feet -	4	6	—	32
50 and under 100 " -	84	82	86	510
100 " 150 " -	137	127	94	637
150 " 200 " -	124	89	103	519
200 " 250 " -	157	100	134	569
250 " 300 " -	149	89	115	480
300 " 350 " -	128	73	89	380
350 " 400 " -	79	45	41	207
400 " 450 " -	39	25	21	103
450 " 500 " -	29	17	6	72
500 " 550 " -	40	18	22	90
550 " 600 " -	18	11	5	36
Above 600 " -	79	39	7	114
Aggregate of 495 houses examined	1,067	729	723	3,749

Certain of the London magistrates, who rarely have to deal with places so difficult of ventilation as these Greenock houses, have assented to a minimum standard of cubic space for rooms occupied by day and night. It amounts to 400 cubic feet for each person; when two children under twelve are counted as one, or, what is about the same thing, 300 feet for every person at any age. In Greenock no less than 2,747 persons out of these 3,749 are living under conditions which would not be permitted in the worst parts of London. And in the instances at the top of the Table a condition of matters is disclosed to which there can be but few parallels, and which represents people living day and night in a space about the size of a street cab apiece.\*

\* It is right that figures so startling should be corroborated by other observations. In the course of the present inspection the following cases were noted. One roomed house in No. 6, Highland Close measures 7 ft. x 9 ft. 3 in. x 7 ft. 6 in.; 485 cubic feet tenanted by a man, wife, and four children in two beds, 81 cubic feet to each person. Fever here. In same tenement a two roomed house in the roof. In one room 10 ft. 3 in. x 9 ft. 9 in. x 6 ft. 3 in., 650 cubic feet, the three children of the house and two lodgers sleep, 130 cubic feet a piece. In same tenement other houses giving 100—150 feet to each person. Fever has been all through them. Town has lately lime-washed them. Rooms dark. No privy or anything to serve for one in the whole building. No ashpit, no water.—Tenement in Anchor Inn Close. House of four small rooms on ground floor, each 7½ feet high, very dark earthen floor. Cubic space 1150, 448, 1085, 550 cubic feet respectively. Inhabited by family of five persons and eight male and three female lodgers, making 16 persons in all. In the room of 1,085 cubic feet, eight persons of different families sleep. House not registered. Rent of house 14s. a year, being higher because of profit made out of

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On Typhus at Greenock, by Dr. Buchanan.

Crowding of people in houses.



## APPENDIX.

No. 4.

*On Typhus at  
Greenock, by  
Dr. Buchanan.*

Class that is  
overcrowded.

How over-  
crowding  
comes about.

Dirty habits  
of people.

Privies, drain-  
age, and ash-  
pits.

The intense overcrowding in Greenock is not only among the vicious or the utterly poor; the families of labouring men who earn an average of 15s. a week and upwards were constantly found to be lodged along with members of other families in small filthy rooms where decency and health were impossible; and the condition of lodgment of artisans in receipt of two or three pounds weekly was often not much better.

The overcrowding arises partly from poverty but more from ignorance, and partly from the restricted amount of house accommodation that exists for the large numbers of people who have been recently attracted to Greenock by the activity of its manufactures. There appears to be no doubt that 6,000 or 7,000 people have been added to the population since the last census, while the additional number of dwellings erected since 1861 would only accommodate 500 families. A great majority of the new comers have, therefore, had to be provided for in the old ill-constructed dwellings that have been described, and which were already in 1861 greatly overcrowded. The demand for rooms is so keen that there are hardly any in the town empty, new houses are let before their roofs are on, and extravagantly high rents are paid by the working people for the wretchedest accommodation.

The habits of the population among whom fever has prevailed are particularly dirty. Of course in a dark room, all corners and recesses, with flooring of earth or of boards rotten and uneven, tenanted promiscuously, and leading off a common stair that it is everybody's business to attend to, cleanliness is not to be expected. And when it is added that out of the 50,000 residents in Greenock, 35,000 are estimated to be unprovided with any water but such as they carry up from the public street, and that the great bulk of the poor houses have no privy or ashpit accommodation whatever, no condition appears to be wanting to ensure the extreme of filthiness.

The exceptional spread of fever in 1864 is by some parties connected with the new erection in that year of middens\* and ashpits in many parts of the town. It would be much more true to say that it has been connected with the absolute want of any such conveniences in whole streets of thickly peopled houses. The common method of getting rid of refuse in houses thus deficient is by depositing the contents of chamber vessels with ashes and other filth in the roadway between the hours of 10 p.m. and 8 a.m. For the fourteen hours of the daytime, such matters have, for want of other means of disposing of them, to be voided and retained inside the close and crowded rooms, no matter whether the inmates be grown men and women of various

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lodgers. Fever common in this house. House lately lime-washed by Trust, and beds burned on account of fever. This tenement as a whole contains on three floors 12 separate "houses," many of one room; all occupied, mostly by more than one family, all over crowded, having 87 tenants in all. The total yearly rent of them all amounts to 91l. 13s., while the whole tenement, built in the most slovenly way direct upon the ground may have cost (the sanitary inspector estimates) some 250l. altogether. The following are from the notes of the inspector of nuisances. In tenement No. 38. High Vennel. House of one apartment 13 feet by 9 feet by 6½ feet high; 760 cubic feet, filthy. Tenanted by 10 persons; 76 cubic feet to each. All the apartments in this tenement unfit for human habitation, all filthy, and much over-crowded. Tenement in Minch Callop Close. Room shape of a passage 16 ft. x 4½ ft. x 7 ft., 510 cubic feet. Six residents. Rent 5l. a year. Rooms 7½ ft. x 7½ ft. x 6½ ft., 355 cubic feet. Four residents. Rent 4l. 10s. a year.

\* The middens are not drained. The ashpits are made of impervious material, and are restricted in size to 5 feet square, in order that they may be more frequently emptied. When the ashpit receives anything but dry refuse there is a rule that it shall be emptied at least twice a week.

families, or whether they are in sickness or health. At the same time the introduction of the midden system is doubtless to be deprecated. In the restricted area about the houses middens cannot be placed without causing great nuisance, and even dry ashpits, unless they be covered and daily emptied, tend to the serious pollution of the little air that enters the houses.

After what has been said as to the construction of houses, the crowding of rooms, the general dirtiness and the retention of foul matters, the statement is almost superfluous that in every poor man's room in Greenock the atmosphere is foetid, the singular variety of stink being as remarkable as its general intensity.\*

Employment has been very abundant in Greenock throughout the whole of the recent epidemic period. Every person who could work has had the opportunity of earning high wages with considerable constancy, and out of the class of old and disabled paupers there has been no destitution beyond what has come of unthrift and intemperance. The class of registered paupers has not increased so fast as the increase of population, but latterly the casual paupers are becoming more numerous through the family workers being cut off by the fever. It is suggested that among the registered paupers, there may have been unusual distress, owing to the enhanced price of most necessaries of life. Their allowances are given in money, and in payment of rent, and sometimes in clothing, and appear to be liberal according to the standard of pauper allowances generally. The following are the statistics of pauperism, and of drunkenness in the last five years.

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Greenock, by  
Dr. Buchanan.*

No exceptional  
distress.

Progress of  
pauperism and  
of drunkenness.

Year.	In-door Poor. Average Number in Workhouse.	Registered Out-door Poor.	
		On roll January 1st.	Admitted in year.
1860 - - -	200	697	298
1861 - - -	192	759	271
1862 - - -	196	745	326
1863 - - -	212	796	310
1864 - - -	209	833	288
1865 - - -	—	815	—

## Persons in custody in year ending 31st March.

	Drunk : In custody for protection, and discharged without being brought before a Magistrate.		Drunk, and charged with this offence or other Police offences.		Total.
	Males.	Females.	Males.	Females.	
1860-61 - - -	886	522	279	100	1,787
1861-62 - - -	960	488	228	79	1,755
1862-63 - - -	1,052	641	311	81	2,085
1863-64 - - -	1,331	673	440	150	2,594
1864-65 - - -	1,311	607	776	514	3,208

\* The houses of better class people in Greenock are mostly supplied with water-closets, of which more and more are being constructed. Some for tenements are furnished with McFarlane's closets, which answer well. The drains discharge into main sewers of recent construction, but some into an open ditch, that has been a brook, called the West Burn. The water supply of the town is derived from the hills and is very soft and good, though it is often discoloured and even thick for want of proper filtration. The public supply is provided in the streets within 100 yards of most houses, and gives about ten gallons daily for each person. The whole water supply of the town is on the continuous system. The paving of private courts is often bad, and in some rapidly growing parts of the town even the public streets remain long in a half-formed state.



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Diet of poor.

The usual food of very poor people in Greenock is bread and tea and coffee. Oatmeal is not considered so economical as bread, but is largely used. Treacle and potatoes, and a little fish, are the articles first added to the staple diet of bread, as they can be afforded. Then bacon, and broth, made of hocks and bones, are provided. Eggs, which are got cheap from Ireland, butter milk and skimmed milk, are common articles of food. Butchers' meat is not eaten much by any under good class labourers. The Sunday dinner is not, as it so commonly is in England, an extra good meal.

Action of  
authorities

The action of the authorities in sanitary improvement had, until lately, scarcely extended beyond the paving of the town and the construction of main sewers. Scavengers were employed to remove from the streets the soil and refuse that was thrown on them, and the police were instructed to take cognizance of nuisances; but very little attention was paid to the wants of poor houses until the appointment of the present inspector of nuisances in 1863. Since that date about 250 ashpits have been erected, 200 privies in connexion with ashpits (middens), and 150 waterclosets with water. Branch drains have been made from waterclosets, sinks, closes, and courts to the number of 250; and another 170 closes and courts have been paved and drained.

in view of  
fever.

In June 1864, in view of the increase of fever and of the delay consequent on the ordinary means of procedure, the Police and Water Trustees resolved to cleanse and limewash poor houses at their own expense; and this was largely done, especially for houses in which fever had occurred. In December, the fever still increasing alarmingly, further measures were had recourse to. A committee of magistrates and police trustees was appointed, and the services of four medical men were engaged as temporary officers of health. They visited from house to house among the poor, taking means to detect early cases of fever and the existence of nuisances, and reporting at frequent intervals to the committee, under whose instructions a number of owners were prosecuted. A staff of 10 or 12 men was employed under the sanitary inspector in cleansing and limewashing, and in destroying the beds on which fever patients had lain. The following is a summary of their work up to April 6th. Houses cleansed, fumigated with chlorine, and whitewashed, 224; closes, courts, staircases, and passages limewashed with hot lime, 127; hose procured and constantly employed to wash down courts and closes after the scavengers' visits; beds on which fever patients had lain, burned, 133; straw distributed, enough to make about 100 new beds; pairs of blankets destroyed and replaced at expense of committee, 167. In this summary ordinary sanitary work done by the owners of premises themselves is not included.

Inaction in  
matter of com-  
mon lodging  
houses.

Common lodging-houses are under the charge of the sanitary inspector, and in this department of his work he is assisted by the police. Out of the hundreds of common lodging-houses that there are in the town, 15 only are registered, being licensed to take in 173 persons, and the rest are unlicensed and are well known to be in the deplorable condition of dirt and overcrowding that has been described. The authorities excuse themselves from not enforcing the provisions of the law as to registration and consequent regulation of these houses, on the plea that the technical definition of a common lodging-house is just evaded; that, when proceedings are taken against the keepers of such houses for non-registration, they always swear to their charge exceeding 3*d.* a night, and the prosecution at once fails. Further, with regard to the special condition of overcrowding, which is the chief evil to be remedied, the authorities refer to the great scale upon which people must be displaced if common lodging-houses were regu-



lated, and show that there exists no provision in the town for their proper lodgment.

In Greenock typhus patients have been treated partly at their own homes and partly at the hospital. Perhaps nearly half the cases have been sent to hospital. This is a charitable institution receiving parish cases under an agreement with the parochial board. Its ordinary number of fever beds is 70; but room has been made for more patients in the recent emergency, partly by the use of a general ward for fever, partly by putting more beds into a ward. The rule of the hospital refusing young children has been relaxed, and no case has actually been denied admission when sent by any medical man or by the parish. As many as 145 patients have been treated here at one time, of course not without undue crowding.\*

In November 1864 a house was lent to the directors of the hospital by the sheriff for the reception of fever convalescents, and 32 patients have been maintained there from charitable funds specially subscribed. This institution has not only been useful in facilitating the recovery of the patients themselves, and in preventing the spread of contagion from them, but it has been equivalent to providing additional fever beds in the hospital.

Patients are conveyed to hospital either in a special horse ambulance belonging to the parish, or in a sedan chair provided by the hospital. It is penal to convey contagious disease in ordinary street vehicles.†

For the out-door, poor who are treated for fever at their homes, every necessary ordered by the medical officer is supplied without question. Beef for beef tea and whiskey have been the articles most frequently ordered during the attack, and during convalescence the poor have had meat and have received other assistance beyond their usual allowances.

It appears, then, that a good deal of sanitary work has been done in Greenock, but not much until the fever had attained alarming proportions. The authorities have not attempted to deal with the great cause of epidemics that has been insisted on in this report—the overcrowded and ill-ventilated state of the houses.

The following improvements appear to be imperatively required to prevent Greenock from suffering to its present frightful extent from contagious diseases, and especially from typhus fever.

- (a) The closes and courts of the old town must be better ventilated. Power should be obtained and acted on to make new streets through the crowded parts, and to pull down premises that impede the ventilation of blocks of houses, or that are required to make space for the erection of sanitary conveniences. Precedents exist in other towns for such powers being granted, and a beginning of legislation in this direction was made in the

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Hospital pro-  
vision.

Fever treated  
at homes.

What is wanted  
to prevent  
future epi-  
demics of fever  
in Greenock.

\* The different fevers are so far classified that smallpox and scarlet fever are kept apart from typhus and from each other; but in spite of this precaution each of these diseases was contracted in 1864 by persons convalescing from other complaints; and from the general medical and surgical wards, five cases of smallpox and two of typhus were removed to the fever wards during the year. In the convalescent house some four or five cases of typhus arose among the few persons who were sent there convalescing from other forms of fever.

† Some fever cases are admitted into the Greenock Hospital from the adjacent town of Port Glasgow, which has no provision for them. A short visit was made to Port Glasgow, and the people were found lodged as wretchedly as in Greenock, and suffering as badly from fever. Small huts of wood and paper built against the churchyard wall under the churchyard level upon the bare ground afforded a sample of the shifts to which people were reduced to get lodgings. They were thickly tenanted by dirty people and fever.

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- Greenock Local Act of 1840. The powers obtained, however, under that Act were insufficient, inasmuch as they did not compel the sale of premises, nor provide means for assessing their value.
- (b) The minimum width of new streets and the minimum amount of open ground to be attached to each newly-built house should be fixed by law. For the last few years this requirement has been met by the private action of the landed proprietors of Greenock, but it is clearly desirable that these points should be fixed by legislation.
  - (c) All houses unfit for human habitation and certified to be so by the medical adviser of the local authority should be closed. There are a multitude of such houses in the town.
  - (d) All houses occupied by more than one family should be registered as common lodging-houses when the house consists of fewer than four rooms; and any house should be registered where people of more than one family sleep in the same room. Registration should be enforced and all registered houses should be properly inspected and regulated, and persons sick of contagious disorders duly removed from them.
  - (e) [For the purpose of dealing with overcrowding, and to secure other powers, the Nuisances Removal Amendment Act for Scotland should be adopted in Greenock.] A house should be defined to be overcrowded, and proceedings should be taken in respect of it, when the cubic space available for each individual in any room falls short of 300-400 cubic feet, a larger space being secured if ventilation be not satisfactory.
  - (f) Water for domestic purposes and trapped sinks should be provided for every house up to its top flat. A more ample supply of water to the town, with completer filtration, is to be desired.
  - (g) It is not desirable that the midden system should be introduced. As a temporary measure it may indeed be more advantageous to provide middens than to retain soil and refuse throughout the day in the small rooms of the poor, but then the middens should be drained, and should be very frequently emptied, and should as soon as possible be replaced by a better system of removing refuse. The plan that is to be commended for Greenock, as the permanent provision for soil and refuse throughout the poor districts, is in the main the water drainage system, which implies closets properly constructed and trapped, abundantly provided with water, ashpits being independently supplied for dry rubbish only. For some poor tenements, this system may not be applicable, particularly where the rough habits of the people derange any sort of closet, and cause foul gases to be delivered into the houses. In such instances, a modification of the midden system might be retained; but then it would be essential that the receptacles for soil and ashes should be of small size, and should be emptied every day; and it would be best that they should be moveable, so that the full vessel can be taken away, and an empty one substituted every morning.
  - (h) The plan of washing out courts and cleansing houses, that is now adopted by the Water Trustees as an exceptional measure, should certainly be continued. There would manifestly be advantages in the Trust continuing to do these offices by persons in their own employ, but as it would probably be considered the business of owners to keep their courts and houses clean, it is essential that the Trust should diligently inspect, and rigorously insist on such duties being performed.

(i) The appointment of a medical officer of health is much to be desired. He would advise the Trustees, as to the best means for protecting the public health, and would point out in detail the best way of carrying into effect the sanitary measures that are here advocated. He would take cognizance of the existence of contagious disease, and would devise means for checking its spread. He would be at the head of the sanitary officers of the Trust, and would be able to do, both from his position and from the functions entrusted to him by law, much more good in sanitary matters than can be done by a non-medical official. A responsible officer of health would have been most valuable in the present epidemic of fever. He would have advised, for instance, at an early period of the outbreak the action which was taken at a later period, with very inferior effect, the disinfection of houses and the burning of beds. And with such an officer, the present condition of the unregistered lodging-houses should have been impossible.

(j) An increase in the amount of hospital accommodation for infectious cases is greatly needed. A scheme for the extension of the present hospital is on foot, which will permit of the whole of the existing building being devoted to contagious diseases, and it is estimated that by alterations in the construction of the building, a hundred beds for these diseases may be made, with provision for the proper separation of one infectious disorder from another. These will probably suffice for the next few years, since the epidemics that have lately scourged the town will probably not recur in force while the residents protected from them by having already suffered, are so numerous as they must be at this time. Whether more than a hundred beds will suffice for the contagious diseases that will become epidemic within the next ten years must largely depend upon the sanitary progress that the town shall have made. It will be a wise precaution to set aside a piece of ground (before the town extends much farther) suitable in position for temporary wards to be built on, in case the necessity for them arose. Meantime, such an open piece of ground might be made conducive to the preservation of health in many ways.

For certain of the improvements advocated in this report legislative interference must be sought. The authorities of Greenock have a Bill now before Parliament for improving the town, and it contains many useful provisions. But not less than what is advised will meet the sanitary requirements of the town. Meanwhile, however, the authorities should work up to the top of their existing powers, and should especially make another and more serious effort to deal with common lodging houses under the present law.

To provide decent lodgment for the labouring classes, who must largely be displaced by future sanitary measures, is in Greenock, as in other towns, a matter of most grave importance. But it is demonstrable in Greenock (what is not the case in some other towns) the obstacle of unremunerativeness does not exist to erecting working men's houses. That they would pay a very fair and safe interest on money invested in them is shown in the most satisfactory way by the fact that some excellent workmen's houses have been built not far from the quays, are eagerly sought after, and yield sufficient profit when let at the same prices that are charged elsewhere for the filthiest sort of lodgment. Even to accommodate the very poorest people would not seem difficult

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if the results of a calculation that was made in much detail for the purposes of this inquiry can be trusted. It appeared that blocks of houses could be built of a character that is in incessant demand by the poorest people, at no important distance from the centres of labour, with plentiful space round them, provided with wash-houses, ashpits, waterclosets, and every sanitary need at a cost (including acquisition of title and expenditure in road and sewer making) that would enable their owner to get a safe six per cent. net annual interest for his money. In this calculation the rental was taken at something less than what is now actually paid for the dirty hovels, and allowance was made for every possible outgoing, including expenses of management and a good margin for bad tenants.

Still the erection of workmen's houses is not a favourite way of investing money in Greenock, partly perhaps because the activity of trade has made people dissatisfied with small rates of profit, but mainly because it is uncertain how long the present exceptional demand for labour may last. But under these circumstances it appears natural to suggest that those who require extraordinary labour should make some effort to lodge their labourers under conditions that shall not breed pestilence. There seems no reason why wages should not partly be paid in house-room, and particularly in the case of single men. Not at the present time only, however, is the town overcrowded; for years the population has been in excess of the healthful accommodation that the town can supply. If people were prevented from huddling together, four, five, or six in the space that is required for the health of one, there is no question that a sustained demand for new and wholesome dwellings would be created, and a great inducement would be afforded to investing capital in them.

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by  
Dr. Seaton.*

NO. 5.—REPORT by DR. EDWARD C. SEATON on Circumstances endangering the PUBLIC HEALTH of CHICHESTER.

In conformity with their Lordships' instructions, I proceeded to Chichester on the 15th May, and on the 16th and 17th made inquiry into the sanitary state of that city.

It had been alleged, in communications addressed to the Home Office and to their Lordships, that the death-rate of Chichester was high, and that various unsanitary conditions existed there; attention being particularly called to the influence of a large cattle market held every fortnight in the streets of the city.

In conducting my inquiry I put myself in communication with the local sanitary authority, with the inhabitants who had brought the subject under their Lordships' notice, with the medical practitioners of the city generally, and especially with Dr. McCarogher and Dr. Tyacke, the two practising physicians, Dr. Buckell, the medical officer of the Union, and Mr. Bond, the resident Medical Officer of the General Infirmary, with the Registrar of Births and Deaths, and with various inhabitants who were good enough to favour me with evidence and information. I carefully examined the death registers and the Infirmary records; and I personally inspected the greater part of the city. The kindness of Dr. Tyacke, Dr. Buckell, and Mr. Bond in accompanying me to various localities added greatly to the ease and completeness of this part of the inquiry.

The results of the investigation are as follows :—

I. As regard the death-rate and the prevalence of disease :—

The deaths registered in Chichester for each of the seven years ending December 31st 1864 have been as under—

Year.	Deaths.	Year.	Deaths.
1858 - -	211	1862 - -	191
1859 - -	186	1863 - -	183
1860 - -	193	1864 - -	207
1861 - -	199		

giving an average of 196 annual deaths. The population, as enumerated in 1861, was 8,876; but in this enumeration are included 831 persons (707 males and 124 females) in the barracks. The barracks have ceased to be occupied since 1862, reducing the population for 1863 and 1864 to 8,045. On these data the death-rate for the first five years (1858–1862 inclusive) would be 22 per thousand, and for the last two years (1863–64) 24 per thousand, the average of the whole seven years being 22·7 per thousand. This is an average higher than that of nine of the metropolitan unions, and within 1·3 per thousand of the death-rate of all London.\*

A deduction, however, is claimed from this death-rate because the mortality as above given includes the deaths in the Chichester Infirmary, many of which occurred in patients brought in from neighbouring places. I found that in the seven-years there had been 88 deaths of persons admitted into this hospital from other places than Chichester; and, if these were all deducted, the death-rate would be reduced by 1·4 per thousand. Not all, however, can fairly be deducted, for it was clearly ascertained that many of them had not died of the diseases with which they were admitted, but of other diseases contracted within the hospital itself, and therefore within Chichester. The Infirmary, besides being deficient in cubic bed-space and generally ill-constructed, is subject to the unwholesome influences which belong to the city at large; it is without any proper drainage. Mr. Bond informed me that of the deaths among the surgical patients two-fifths at the least were from erysipelas and pyæmia contracted within the hospital, and that even some of the physicians' patients had undoubtedly died of disease contracted after their admission.†

It is impossible then to say what number of deaths may properly be deducted on account of disease originating elsewhere than in Chichester; but so far as deduction on this account would influence the death-rate, it must not be overlooked that the population on which I have calculated this death-rate was swelled during five out of the seven years by the soldiers in barracks, among whom the mortality was very small. In the 15 months and more which elapsed between the taking of the

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\* The last two years (1863 and 1864) have been generally throughout England years of exceptionally high mortality. London has been visited with severe epidemics, but its death rate for these two years has been only 1·50 per 1000 higher than that of Chichester.

† Typhoid fever has on different occasions originated in the Infirmary. When Mr. Holmes visited this hospital in 1862 he found one of the wards emptied on account of fever having prevailed in it. The close connexion of fever and erysipelas with drainage errors was shown in 1839, when the Dixon Wing was added to the east end of the building, and the drains thus brought immediately under the walls of the hospital. "The matron, who was at that time lodged in rooms at the east end of the basement floor, was attacked by erysipelas, and severe fever also broke out in the house. The course of the drains having been altered, this subsided."—Sixth Report of Medical Officer of the Privy Council, page 638.

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Census and the removal of the troops, the deaths in the barracks were only eight, or less than 10 per 1000 annually.

Making as near a calculation as we can from these data, we cannot, after all allowances, put the death-rate of Chichester below 22; a death-rate which, for a small city well situated, not overcrowded, but comprehending within its bounds even fields and open country, in which no large manufactures are carried on, gives strong evidence of something radically amiss in the sanitary conditions of the place.

That these are not what they should be is put beyond doubt when the death registers are examined in detail. It is then at once seen that the diseases which are directly associated with unwholesome conditions, especially gastric, enteric, or typhoid fever, are never long absent, and sometimes considerably prevail. The years 1861 and 1863 were the years of least prevalence of fever; in the other five years the deaths attributed directly to this cause were 13, 13, 10, 17, and 13 respectively. Besides gastric fever, deaths from diarrhoea every now and then met the eye with suspicious frequency; and at the time when, in 1860, measles was epidemic, one could not fail to be struck with such entries as the following, which were recorded (there were others like them) on a single day:—

Oct. 10th, at Cooper Street, f. æt. 3, rubeola (6 days), *muco-enteritis* (5 days).

Oct. 10th, St. Pancras, m. æt. 3, measles, *aphtha of stomach and bowels* (10 days).

Oct. 10th, Town Street, m. æt. 1, measles (18 days), *aphtha of stomach and bowels* (10 days).

It appeared, however, from the information furnished me by Dr. Tyacke, Dr. Buckell, Mr. Elliott, Mr. Bond, and other practitioners, that the diseases which result from unwholesome conditions prevailed to an extent of which the death register does not enable us to make a correct estimate; gastric or enteric fever, for instance, being very frequent among children at an age when mortality in proportion to attacks is comparatively small; even among adolescents and adults the cases in proportion to deaths seemed to have been numerous. And I heard, moreover, that besides diseases which, like typhoid or diarrhoea, are *directly* produced by bad sanitary arrangements, *ordinary diseases*, especially in particular localities and particular houses, took on low types; so that deaths sometimes resulted from them which under better conditions would not have been anticipated.

The places about Somers Town, as Cavendish Street, High Street, George Street, and the courts running out of them, were the cases in which fever most prevailed, and in which epidemic and other diseases tended always to put on low types. In Cavendish Street nearly every house has had its case or cases of fever, and in many particular houses in this and other streets fever shows a constant tendency to recur. Parts of St. Pancras were scarcely less bad. But no part of the city seemed to be exempt, nor any class of the population. Dr. Tyacke has frequently seen cases of gastric fever in private practice, and pointed my attention to a handsome looking house in which there had been two cases of fever. Indeed the very strongest instance I met with of fever as attaching to a particular house was that of a house inhabited at the time by a professional gentleman in one of the best parts of the city. In this there had been among the family and servants no fewer than 16 cases of fever in the course of four or five years. Each fresh servant that came to live with them was attacked.

The extent to which enteric fever occurred depended much on circumstances. It was the observation of all that it was most met with



when the wells were low, as usually towards the end of summer ; and this was the condition under which outbursts of diarrhœa occurred.

## II. As regards the sanitary state of Chichester :—

The city of Chichester has an excellent position. Standing at the termination of a gentle descent from the South Down Hills, on the widest part of the long plain which extends from Brighton to Portsmouth, it is freely open to currents of air on every side. It is built on a thick bed of gravel, beneath which, at a depth of some 20 feet or more from the surface,\* is London clay. It has wide open streets, the four principal ones running due north, south, east, and west, and intersecting at the market-cross. Though there are not a few close passages, abominable culs-de-sac, and houses without through ventilation, there is generally ample house space, and the houses are, for a city, unusually well supplied with gardens. No large manufactures or noxious trades are carried on within it. There is no reason that I could perceive why, instead of being unhealthy, as it undoubtedly is, it should not be one of the healthiest cities in the kingdom. The circumstances which now render it otherwise are the following :

### (1.) Want of proper drainage, and pollution of the drinking-water.

There is no system of drainage in Chichester, and there is no extraneous water supply. The Lavant Course, a stream which only runs at times, entering the city at the north-east, does not traverse it, but skirts the walls on the east and south, leaving the city at the south-west. It receives the surface and sink drainage of the houses built along its course, and may receive other things which ought not to enter it. Anyhow it is frequently very offensive, and in summer when the water is low is little better than a fœtid open ditch. No drinking water is taken out of it. The sink drainage of all the houses not built along its course, and the watercloset drainage and privy-drainage of all houses, is into cesspools. These are nothing more than so many holes in the porous soil, walled generally by brick and mortar, the liquid that flows into them being either absorbed by the ground beneath, or overflowing, and running into the soil nearer the surface. Out of other deeper holes in this porous soil all the drinking-water is taken, these wells being so constructed that any fluid stuff may percolate into them laterally. The whole city is thus riddled with holes, the deeper holes or wells being frequently within a few feet of the shallower holes or cesspools. Under such circumstances the frequent contamination of the drinking-water is inevitable. Even where the wells were 15 yards from any cesspool or privy, I had evidence of such pollution in several instances : in one case there was the clearest evidence of contamination having taken place from a cesspool at a distance of 20 or 30 yards.

It was in Somers Town that the water was generally the worst. In many houses it stank at times, and became unusable. But in every part of the city, in the North, the South, the East, and the West Streets, and in the North Pallant, I had evidence that in some houses the water at times became offensive. The water from the public pump in North Street had been offensive last summer. In one house in East Street, in which the well was within three yards of the privy cesspool, the water often after heavy rain was unusable. In another house in the same street, where the well was 12 yards from a very large cesspool which received the closet drainage, the occupant was obliged after heavy rains to send away for water, and never at any time thought it prudent

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\* The section of an artesian well in the South Street gave 6 feet mould, 16½ feet gravel, half foot red coloured sand, and then clay.

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to drink the water of his own well without first boiling it. Some of the inhabitants had been obliged to abandon wells from their liability to pollution, and to sink fresh wells.

Whenever pollution went to the extent of making the water stink, the inhabitants, it need scarcely be said, had recourse to other sources of supply for their drinking-water; but when the gross and obvious indication of contamination which the smell affords had passed away, or when the pollution had not gone to the extent of making the water actually offensive, they generally drank it, though they might not think it very good, rather than have the trouble of sending away. The water which I collected from Mrs. Barnett's pump in George Street, which Professor Miller states to be unfit for domestic consumption, had a peculiar but not an offensive smell, and had been drunk for the seven months she had resided in the house; at times, however, she said it had been offensive. The water from Mr. Reade's pump in South Street had some weeks before I collected it been offensive, so that he was obliged to send elsewhere, but he had resumed the use of it as soon as he could, and no doubt had been drinking a great deal of sewage, for even now, when it is quite bright, and unobjectionable to taste, Professor Miller finds evidence of its having been contaminated. The water in the house in which the 16 cases of fever had occurred had not, so far as could be recollected, ever been actually offensive, but it had always a saltish sweet taste, and had not been a pleasant water.

The conditions under which the water became offensive were, (1) when the wells were low, the solution of sewage being then most concentrated, and (2) when heavy rain, by overflowing or by soakage, sent a lot of cesspool stuff direct into the wells. The water I collected and sent for analysis was taken when the wells were full and the weather was dry; it was said to be at its very best. In many of the houses in which I made inquiry the water was not only bright and good to taste now, but had not at any time, so far as I could learn, given evidence of contamination.

In most of the houses I visited in which fever had prevailed I found that the water had been polluted, and saw the conditions under which this had taken place. In one house in Somers Town, in which there had been several cases and a death from fever, the well and cesspool were within three feet of each other; in another, in which fever or some other form of sickness was constantly prevailing, the well was in close proximity to seven cesspools. In other localities I had illustration of other evils of the cesspool system, and want of proper drainage. Thus, in a court in Little London, in which Dr. Buckell had attended cases of gastric fever, and in which there had been sickness in every house, the water was not complained of, but I found the centre of the court occupied by a large pond of slush, which was then (it being dry weather) three or four yards in diameter, but which extended, I was told, in wet weather, up to the doors of the houses on each side, and this had so remained for several months. The stuff when stirred was very offensive, and the smell at night was declared by the inhabitants to be horrible. In the backyard of Mrs. Barnett's premises in George Street was an accumulation of the same kind. She had at times attempted to remove it, taking as much as seven buckets-full, and throwing it down the privy, but it began at once again to collect. The stench often prevented their sleeping at night. The gutter ways in the streets, and the stench that came up many of the gratings, attested the want of proper drainage-arrangements, and, in connexion with the general system, I must not fail to notice that the yard in the workhouse, which is the exercise ground of the male convalescents, is a small confined space, a few yards square, which enjoys the smell of three privies, one



or two urinals, and a watercloset. The medical officer has often to hold his nose as he walks across it.

(2.) Inefficient administration of the Nuisances Removal Acts.

Besides the evidence of this, already given in the cases of Little London and George Street, there was abundant other proof that the removal of surface nuisances was very inefficient. Heaps of dung and animal refuse were allowed to accumulate. In one house (a butcher's) in which Mr. Bond had attended cases of fever and small-pox, a large and most disgusting accumulation of offal had been allowed to remain in the backyard for weeks. In a locality I visited with Dr. Buckell, in which there had been bad small-pox last year, the house, which was nothing more than a shed built against a wall, without any through ventilation, was approached by a long yard in which were heaps of refuse; there was a high blank wall in front of the shed at the distance of a few feet only, and between the shed and this wall there was a stinking privy; the only air that could at any time get into the house must be charged with privy effluvium. In one house I found the privy in the cellar. With regard to removal of nuisances, it seemed to me that the inspector of nuisances was anxious to do what he could, without offending people, but he evidently feared that a more active administration of his duties would not be favourably regarded by the superior authority. In answer to my inquiries why proceedings had not been taken in the case of this and that long abiding nuisance, I learnt that in one case that the person who would have to be proceeded against was a magistrate, and in another case was a member of the town council.

(3.) The cattle market in the streets.

A nuisance of no ordinary description arises from one of the largest cattle markets of the south of England being held every alternate Wednesday in the streets of Chichester. This market (which is for lean and fat stock) is so considerable that on any market day many thousand sheep, oxen, swine, and horses are brought into these streets, to the great obstruction of traffic, and the great pollution of the air. I was informed that the number of animals often amounts to or exceeds 10,000, and that on one market day last year it amounted to 15,000. This market has largely increased and is increasing. At one time, within no distant recollection, a *part* of the East and North Streets sufficed for it; but now, not only does it occupy the whole of these streets, to which I am informed that it is by law strictly limited, but on the day of my inspection it extended westward into the West Street as far as the cathedral transept, and east to and far beyond the bounds of the East Street. The filth which the animals brought to market leave behind them causes an abominable stench, as I found by walking along North and into East Streets on the evening of the market; but this smell was even worse, because more sickening, the following morning, though the streets had been cleared and scraped. Even in dry weather (as it was then) there must be some soakage; but when the ground has been prepared by previous rain there is a much more active absorption; and, seeking evidence from inhabitants who had not appeared as complainants in this matter, I learnt that very frequently under such circumstances an unmistakeable dung smell pervades the streets for at least a week after the market day. And besides inevitable soakage, rain if occurring at market times must wash the surface stuff into the cesspools, and thus the market refuse must add to the contamination of the wells. I am not surprised that the whole of the medical profession residing in Chichester should have agreed in expressing their opinion, as I now express mine, that a nuisance thus

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polluting air and water cannot be otherwise than injurious in a sanitary point of view.

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## III. The sanitary authority :—

The local sanitary authority of Chichester is the town council ; but, beyond appointing an inspector of nuisances, they do not appear, for a long time at least, to have exercised any sanitary functions. They had at one time a nuisances removal committee, which met at stated times ; but whether the committee exists or not now, any regular meetings have been long discontinued ; it is certainly a year, and probably a great deal longer than a year, since there has been any meeting at all. No reports are made by or expected from the inspector of nuisances. The Local Government Act has not been adopted.

## IV. To sum up I report—

1. That the death-rate of Chichester is unnecessarily high, and that preventible disease often prevails.

2. That the causes of this are absence of proper drainage ; polluted water ; a large cattle market held in the city streets ; an inefficient administration of the Nuisances Removal Acts.

3. That the removal of these causes is of urgent necessity, and that steps ought without delay to be taken—

(a.) For establishing a complete system of drainage :

(b.) For removing the cattle market outside the city :

(c.) For the more efficient administration of the Nuisances Removal Acts.

No. 6.

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## No. 6.—REPORT by DR. HENRY JULIAN HUNTER on Circumstances endangering the PUBLIC HEALTH of LEEDS.

## I. STATISTICAL FACTS.

In the summer and autumn of 1865 the high death-rate of the Borough of Leeds, as made public by the Registrar General's Weekly Reports, awakened much attention in the borough to sanitary subjects ; and at public meetings, and in printed letters and newspaper articles, it was repeatedly stated that disease was very excessively common, and was localized in certain poor and dirty districts, and that either the law or its administration was too weak to deal with some obvious nuisances which were universally asserted to exist, and to which the presence of disease was very freely and with apparent reason imputed. A high death-rate had been usual in Leeds, as will be seen in the table subjoined, but the present rate was in excess of that of former years, and there had long been a growing opinion that the rate might be diminished, if proper laws were enforced for the protection of public health.

The annual average of deaths per 100,000 living of each class, from 1851 to 1861, as given in Parliamentary Paper, 1864, No. 12., is as follows :—

	All Causes.	Fever.	Diarrhoea, &c.	All Causes.	
				Under One Year.	Under Five Years.
England - -	2,217.	91.	108.	17,731.	6,760.
Leeds - -	2,772.	109.	226.	23,932.	10,271.
Hunslet - -	2,403.	90.	157.	21,072.	8,552.

Thus the death-rate usual in Leeds has now been obtained by the Department, with a clearness and minute division impossible at the time of Dr. Greenhow's visit in 1859. Comparisons between past and present mortality in this and other tables must be taken with great care against inaccuracy through misunderstanding the area described as Leeds. The township and union of Leeds are the same. The Borough of Leeds contains, in addition, the following townships of Hunslet union: Hunslet, Holbeck, Bramley, Wortley, Kirkstall, Chapeltown, and Whitkirk. The population of Leeds union was in 1851, 101,000; that of Hunslet, 88,000; but such is the rapid increase that the Weekly Returns are calculated on a population of 224,000 for the borough only. Therefore no comparison should be attempted between the data supplied for the unions and those now supplied for the borough, nor should the results of the two unions be combined, as the ages and the rate of increase of the respective populations cannot be the same.

Leeds union is almost entirely urban, while Hunslet, although containing much of the worst of the town, has the compensation of also containing a large area of healthy country, consequently while the present death-rate of the sub-districts of Leeds union only varies (according to Dr. Braithwaite's valuable tables) from 26·3 in the west to 29·5 in the north, the death-rate of Hunslet varies from 15 in Potternewton to 29 in Burley.

As being applicable to the state of Leeds at the present moment, this table has been extracted from the local returns of the registrars:—

	Total Deaths in the Borough.		Total Deaths from "Zymotic" Causes.	
	1864.	1865.	1864.	1865.
January - - -	617	533	144	95
February - - -	485	604	91	100
March - - -	493	508	91	91
April - - -	588	613	104	100
May - - -	395	453	55	72
June - - -	461	444	61	95
July - - -	518	700	130	238
August - - -	530	543	216	186
September, 3 weeks -	335	383	106	143
	4,422	4,781	998	1,120

In addition to these returns we have a return of deaths registered from the 1st of July to the 13th of September, distinguishing the Wards. The death-rate in the eight wards of the township shows a large increase during the period named, when compared with the same time of 1864. In the north and north-east wards there were 389 deaths against 324 last year; in the Mill-hill, west and north-west wards, 294 against 237; and in the east, Kirkgate, and south wards, 210 against 158.

The following is the statement which the Registrar General makes on the subject in his Weekly Return of births and deaths in the Borough of Leeds, 36th Week, 1865:

"In Bristol again prevailed last week the lowest rate of mortality in any of the eight towns, 20·0. In the other towns the rates ranged in order from the lowest were as follows: London, 20·4; Birmingham, 21·4; Hull, 25·6; Liver-

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pool, 22·7; Manchester, 31·0; Leeds, 31·6; and the highest rate during the week 34·8 in Salford.

"In the borough of Leeds 136 deaths were registered last week. The births were 74, and the deaths 22, above the corrected average weekly numbers, the deaths exceeding those returned in the previous week by 25. This large increase occurred in the North Leeds and Hunslet sub-districts, and would appear to arise in a great measure from the continued fatality of diarrhœa, whereas this disease in an epidemic form is fast disappearing from nearly all the other large towns. The annual rate of mortality to 1,000 persons estimated to be living in the borough, which in the two previous weeks had been 30·2 and 25·8, rose again last week to 31·6.

"In South-east Leeds 17 deaths, the corrected weekly average, were recorded. Of these six resulted from phthisis, three from typhoid fever, and one from diarrhœa; four of the deaths were of infants under two years of age, and three of persons aged sixty years and upwards. The 40 deaths in North Leeds were 15 above the average number; they included two which were recorded in the workhouse, and six in the House of Recovery; 11 deaths were referred to diarrhœa, seven to typhoid fever, and one to measles; 13 of the deaths were of infants under one year of age, including doubtless a considerable number of the diarrhœa cases. In West Leeds, of the 26 deaths (two in excess of the average), two were registered in the General Infirmary during the week.

"The 19 deaths in Hunslet township exceeded the corrected average by five; 13 of these were of children under five years of age, and two of persons aged more than 70 years; five of the deaths were from diarrhœa, and one each from croup, measles, and diphtheria. The deaths in each of the sub-districts of Holbeck, Bramley, and Wortley were within one of the corrected averages; in Kirkstall only two deaths were recorded, the average being five. In the municipal portions of Chapeltown and Whitkirk the number of deaths recorded were respectively three and one.

Cities and Boroughs.	Estimated Population in the Middle of the June Quarter 1865.	Births.		Deaths.		Annual Rate of Mortality to 1,000 Persons living.	
		Corrected average weekly Number.	Registered during the Week ending 9th Sept. 1865.	Corrected average weekly Number.	Registered during the Week ending 9th Sept. 1865.	Rate Average during the ten Years 1851-60.	During the Week ending 9th Sept. 1865.
Columns	1	2	3	4	5	4	5
London (Registrar-General)	3,021,951	1,949	1,905	1,377	1,179	23·6	20·4
Liverpool (Borough)	477,357	323	407	276	263	30·3	28·7
Manchester (City)	355,418	265	244	201	211	29·4	31·0
Salford (Borough)	111,090	82	95	56	74	26·2	34·8
Birmingham (Borough)	328,827	257	178	159	135	24·9	21·4
Bristol (City)	162,042	104	106	72	62	23·2	20·0
Hull (Borough)	103,931	78	84	48	51	24·1	25·6
Leeds (Borough)	224,541	167	241	114	136	26·3	31·6
*Registration Sub-districts in Leeds Borough.							
South-east	29,873	23	49	17	17	28·7	29·7
North	43,394	34	48	25	40	30·7	48·1
West	51,084	33	54	24	26	24·3	26·2
Hunslet	28,993	24	30	14	19	25·5	34·2
Holbeck	16,545	13	11	8	9	26·0	28·4
Bramley	8,653	8	9	4	5	23·5	30·1
Wortley	27,902	23	22	15	14	23·5	26·2
Kirkstall	11,778	8	9	5	2	23·5	8·9
Chapeltown	5,298	3	9	2	3	17·5	29·5
Whitkirk	301	—	—	—	1	22·6	—

\* The particulars as to the sub-districts of Leeds are not of official authority, but are no doubt authentic.



and also for the 38th Week, 1865:

"London experienced the lowest rate (19·7) of any of the towns, and Bristol is the next lowest in the scale. The other towns range in the following order:—Salford, 22·1; Birmingham, 22·7; Hull, 24·1; Leeds, 33·0; Liverpool, 33·4; and Manchester, 33·9.

"In the borough of Leeds, 142 deaths were registered last week. The births were 67 and the deaths 28 above the corrected average weekly numbers, the deaths being, moreover, five in excess of those recorded in the previous week. The annual rate of mortality was 33·0 per 1,000 persons living in the borough which is even higher than the high rate of last week, and is 7 per 1,000 above the average rate in 10 years.

"The registrars make no mention of any special disease as accounting for the large number of deaths registered, but one of them attributes the unhealthiness of the town in great measure to the cellar kitchens and cellar dwellings in which the majority of the wives and children of the working classes live.

"In south-east Leeds the deaths were 23, or two more than in the previous week, and six more than the corrected weekly average.

"In north Leeds 11 deaths in excess of the average were recorded, two of which occurred in the workhouse and four in the House of Recovery. The 26 deaths in West Leeds are two above the average, and include one death in the General Infirmary.

"In Hunslet 22 deaths were registered, the average number being 14. Two deaths from fever and two from diarrhoea occurred in Holbeck, where the 11 deaths were three above the weekly average. In Wortley, 11 deaths were recorded, or four less than the average, and fewer by 13 than the deaths in the previous week; three of the deaths were caused by diarrhoea. In Bramley the seven deaths were three in excess of the average; in Kirkstall the weekly average number is five; the actual deaths in the week were only three.

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Cities and Boroughs.	Estimated Population in the Middle of the June Quarter 1865.	Births.		Deaths.		Annual Rate of Mortality to 1,000 Persons living.	
		Corrected average weekly Number.	Registered during the Week ending 23d Sept. 1865.	Corrected average weekly Number.	Registered during the Week ending 23d Sept. 1865.	Average Rate during the 10 Years 1851-60.	During the Week ending 23d Sept. 1865.
Columns	1.	2.	3.	4.	5.	4.	5.
London (Regis. Gen.)	3,021,951	1,949	1,962	1,377	1,143	23·6	19·7
Liverpool (Borough)	477,357	323	376	276	306	30·0	33·4
Manchester (City)	355,418	265	281	201	231	29·4	33·9
Salford (Borough)	111,090	82	76	56	47	26·2	22·1
Birmingham (Borough)	328,827	257	282	159	143	24·9	20·7
Bristol (City)	162,042	104	98	72	62	23·2	20·0
Hull (Borough)	103,931	68	82	48	43	24·1	24·1
Leeds (Borough)	224,541	167	234	114	142	26·3	33·0
Registration Sub-districts in Leeds Borough.							
South-east	29,873	23	31	17	23	28·7	46·2
North	43,394	34	81	25	36	30·7	43·3
West	51,084	33	49	24	26	24·3	26·2
Hunslet	28,993	24	29	14	22	25·5	39·6
Holbeck	16,545	13	14	8	11	26·0	34·7
Bramley	8,653	6	6	4	7	23·5	42·2
Wortley	27,902	23	18	15	11	23·5	20·6
Kirkstall	11,778	8	1	5	3	23·5	13·3
Chapeltown	5,298	3	5	2	3	17·5	29·5
Whitkirk	301	—	—	—	—	22·6	—

Thus in the 36th week of this year the Registrar-General, calculating the population of Leeds to be 224,500 persons, stated the death-rate of the week to be 31·6, or 5·3 over that of the decennium 1851-61. In the 38th week he states the death-rate to be 33, or 6·7 above that

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standard. No corresponding exacerbation of mortality prevailed elsewhere. The rate in various towns was in some above and in some below the average, as in Liverpool where the usual rate of 30 had risen to 33·4, and in Bristol where the usual rate of 23·2 had sunk to 20. In this last week, which ended 23d September 1865, two deaths from diarrhoea and two from fever occurred in Holbeck, three from diarrhoea in Wortley.

In the present year, Dr. James Braithwaite has published an "Inquiry into the causes of the high death-rate in Leeds," in which he attributes much of the excess to the want of light and air in the poorer dwellings, and to the emanations from putrifying animal matter. The locality of fever in Leeds is shown at pages 26 and 27 of his pamphlet; but after a superficial survey of the whole town your inspector fails to find any poor parts much better or much worse cleaned than the rest. Perhaps the filthiest place of all was Ebenezer Street, and this is reported by Dr. Braithwaite to be a focus of fever.

Dr. Braithwaite's pamphlet is so full of matter as not to bear abstraction, and is sent in to the Department. Inquiry was made in order to bring the facts on the alleged prevalence of disease up to the latest dates. At the Women and Children's Hospital, the total number of patients admitted in August and September 1863 had been 175, in 1864, 198; in 1865, 212; and of these cases the diarrhoeas had been only 9, 5, and 6 in the respective years.

The number of deaths from diarrhoea registered in the borough, in the week ending 16th September, had been 30. At the Leeds Public Dispensary, the number of deaths since 5th August had been 92, of which 32 were caused by diarrhoea, fever, and gastritis.

A copy of an important report from the medical officers of the union is here attached. For the Leeds Board of Guardians have recently paid special attention to the sanitary condition of the township, and have two inspectors regularly employed in hunting out nuisances, and, as far as possible removing them. Owing to the high rate of mortality, the board recently requested the medical officers to report as to the state of their respective districts. These reports were presented at the usual meeting, and were read by Mr. Lampen. They are as follow:

Mr. Cottam says,—

"I have visited almost every part of the No. 1. district, comprising the Kirkgate and East Wards, and I must confess that the sanitary condition of it is infinitely more satisfactory than it has been for years. I notice that such places as St. Saviour's Row, Zion's Square, Poke Alley, &c., are now in a much cleaner condition than what they have hitherto been; unquestionably from your valuable exertions in suppressing any existing nuisance. There are certain portions of my district to which I think it is my duty to draw your attention, viz., Walker's Yard, East Street, the cellar dwellings in Brighton Court, Foundry Street, the accumulation of stagnant water in the channels in Crispin Street. I think also, that Timble Beck, in East Street, ought to be entirely covered, to protect the inhabitants from the abominable exhalations which occur in hot weather. I am also of opinion that a considerable amount of disease, especially of an infectious character, arises from insufficient sleeping accommodation afforded to the working classes generally. The inspectors would do well to look after the disagreeable exposure of the collection of feculent matter and urine in the cesspools in connexion with the garden houses in Accommodation Road."

Mr. Beardshaw says,—

"The district which comes more immediately under my supervision comprises the north and north-west wards.

"In reference to its sanitary condition, the neighbourhood of Union Street, Ebenezer Street, Back George Street, and the yards and streets adjoining Kirkgate, as well as some of the streets in the Leylands, are still in a very filthy

and unsatisfactory condition. Notwithstanding the immense good and praiseworthy efforts of the board of guardians, there is still much to be done.

"A large number of most serious sanitary evils formerly existing have been removed, such as offensive cesspools and other large collections of foul matter which must prove detrimental to the public health.

"In this locality typhus, diarrhoea, and dysentery are prevailing to an alarming extent.

"It only remains to consider what other methods can be devised to counteract the noxious influence of the poison in such situations. In the first place, as a preventive I know of none so efficacious as the thorough cleansing out and whitewashing of those filthy courts and houses, and, as far as practicable, to inculcate personal cleanliness, which, in my opinion, is a great safeguard.

"2ndly. I should strongly recommend the Board and the authorities of the town to prohibit those dark, damp, and ill-ventilated cellars from being used as sleeping apartments, as it is a well-known fact that malaria is more easily generated there, and from its specific gravity accumulates.

"Hence the greater prevalence of fever and other diseases in those subterranean abodes.

"I would also recommend the Board to persevere in their endeavour to put down the shameful over-crowding of families and individuals in one room, without ventilation or any means of obtaining fresh air.

"I would urge upon the Board the necessity of insisting upon increased privy accommodation, so as not to allow more than four houses to a privy, and that in cases where they are not kept clean the tenants should be summoned before the justices for the same. And I would also represent to the town council, with whom rests the scavenging of the town, the absolute necessity of the night-soil being removed at night instead of by day (as used to be the case)."

Mr. Bulmer says,—

"I have not had much cholera or diarrhoea, except among children and the old and infirm. The fatality among these has been slight, although somewhat above that of the last few years. But, considering the heat of the summer, and its still not very far advanced stage, it does not follow that we may not have epidemic cholera, which on previous occasions has come upon us suddenly.

"There is also a tendency to fever, as shown by the number of cases in the House of Recovery. I have sent 20 there since the 1st of April, which number is considerably above the average, although not so high as 1863. These cases are of a typhoid character, and should be at once removed, so as not only to give the patient a better chance of recovery, but also to prevent to some extent the spread of the infection.

"Annexed is a list of courts, yards, &c., which, on account of the filthy state of the privies and ashpits, and the want of a good current of air through them, I consider unhealthy, and liable to generate the above diseases; and I wish also to draw attention to the state of the drainage in Middle Fold.

Skelton's Yard, St. Anne's Lane. (F.)	Rushworth Street, Newtown. (S.)
Clarkson's Yard, Quarry Hill. (F.)	Dunn's Yard, Off Street. (S.)
Patrick's Buildings. (F.)	Falstaff Yard.
Plane Square. (F.)	Back High Street.
114, High Street. (F.)	Somerset Street.
Off Yard, Off Street. (F.)	Plato Street.
Phillip's Yard. (F.)	Union Row.
Searle's Yard, York Road. (F.)	Corner of Fox Street, High Street.
Butler's Court.	Orange Court.
Ellen's Court.	York Court.
Cross Stone Street.	Lowden's Court.
Purdy's Yard.	Dyson's Yard.
Dufton's Yard, Somerset Street.	Rising Sun Yard.
Lee's Square.	Dufton Yard, Marsh Lane.
New Cleveland Row. (C.)	98, High Street.
Riley Yard and Court.	Passage from Chapel Street to Giles
Back Lane.	Street.
Lamb's Court.	Globe Yard.
Harrison's Buildings.	Mushroom Court.

"Fever has occurred in places marked (F.); cholera in those marked (C.) scarlet fever (S.)."



## APPENDIX.

Mr. Ruddock says,—

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Dr. Hunter.

“ I have to report that, with regard to the genera sanitary condition of my district, I have the satisfaction of stating for your information that it is to a material extent favourable,—certain parts in each division, such as courts, alleys, close yards, and overcrowded dwellings necessarily excepted.

“ Since our last report, in consequence of the extension of the sewerage, and the paving of the streets, a decided and marked improvement has been effected. Nevertheless, during the last three months, there has been in isolated places throughout portions of the district a number of cases of choleraic-diarrhoea, diarrhoea, and those more particularly zymotic or contagious diseases, typhoid fever, small-pox (not virulent), scarlatina, and measles. I need scarcely say that when I have had an opportunity of removing the worst cases into the Fever Hospital, I have promptly done so, and when this could not be accomplished, keeping them as much as possible apart from the rest of the family (a difficult task when the space and accommodation were so limited as in small dwellings and cellars).

“ Now the probable causes of these diseases (independent of atmospheric influences, over which we have little control,) are the miserable ventilation of the dwellings, the immediate proximity of filthy and disgusting ashpits, middens, and privies, polluting the air, and the absence of cleanliness on the part of the people themselves. I also think that the offensive effluvia frequently emanating from the sewerage grates or traps must conduce to the generation and propagation of disease, more particularly at a time like the present, when the weather has been so hot and sultry, and the air charged with infectious particles.

“ I will now venture to enumerate some of the places where these several different diseases have prevailed, and where the nuisances are to be found. To begin with the South Ward,—Bowman Lane and the courts at the bottom, Wright Court especially, Noah's Ark Court and Yard, leading from Hunslet Lane into Meadow Lane, Neal's Yard, Shepherd's Fold, Hill's Yard (Meadow Lane), Land's Court (Water Lane), courts and yards in Camp Field, in School Close. Mill Hill Ward,—Bow Court, William's Court, and Hopkin's Yard. In the West Ward,—Airedale Court, Howarth's Court, Wellington Place and Court, Marlbro' Court, Cardwell Yard (Chatham Street), Robert's Court, in St. James's Street, Park Court, with many others of a similar class. I may state that I find, on referring to my medical report book, that the number of orders I have had from my relieving officer during the last three months has considerably exceeded the number for the corresponding period of last year, and these cases in the localities above named.

“ It is highly requisite that means should be adopted promptly and energetically to remove those several sources of nuisance as far as possibly can be effected by preventive means; such as furnishing an ample supply of lime for whitewashing and cleansing the dwellings of the poor and improving the condition of the privies and ashpits, using the disinfecting liquid or powder with a liberal hand, at the same time urging upon the people themselves in these infected localities to be more cleanly in their habits, and to be careful in strictly and quickly removing from their houses all noxious accumulations, more especially in the overcrowded cottages and lodging-houses.”

Mr. Beardshaw finds an unusual number of cases of fever and diarrhoea now in his district. Mr. Ruddock and Mr. Cottam think there is rather less disease this week than is usual at this time of the year. Mr. Bulmer took fever over the inspections mentioned above, and is now dead. Another union officer and the house surgeon of the Public Dispensary are laid up with fever.

Opinions seemed much divided as to the prevalence of disease, but there can be no doubt that (1) the mortality is higher than even the usual excessive average of Leeds, and (2) that the diseases which prevail are those which are by almost universal consent attributed to decomposing animal filth as their cause.

The books of the dispensary fully support this view of the state of things.\* APPENDIX.

## II. STATE OF THE TOWN.

To the eye of an inspector who had just left Newcastle and Sunderland, and who in the same week visited Sheffield, Leeds in August 1865 presented a surprising sight, bringing to remembrance the condition of many English towns of twenty years ago, but finding hardly a standard with which to be compared in the present state of any great town. Thousands of tons of midden filth filled the receptacles, scores of tons lay strewn about where the receptacles would receive no more. Hundreds of people, long unable to use the privy because of the rising heap, were depositing on the floors. A few dawdling carts, under command of Mr. Sands the corporation officer, and subject to no inspection, unless Mr. Sands be taken to be inspector of his own duties, would after many applications relieve the midden of such inhabitants as could by peremptory manner or by influence obtain a hearing. Even then the relief was most imperfect. In one instance the scavenger reported a receptacle as emptied, yet 20 tons of stuff were removed when a second visit was insisted on. The pressure of these enormous weights was so great that liquid ordure had been seen after permeating the ground to be forced up around the hearth-stones of neighbouring cottages. The officers of the union complained to their board no less than 3,500 times in about two years and a half of distinct instances of neglect.

The force employed in cleaning, which had been last spring 45 carts, had been reduced to 30, and with an excess of delicacy, badly agreeing with the universal neglect, no removals were made except by night. Such carts as were employed only carried the midden filth to a deposit in the town, by the water side, except a few by which some railway trucks were loaded. At this deposit stood thousands of tons of midden filth needlessly waiting for removal by boat or cart for consumption. 7,000 tons stood there at one time this year, and yet the quantity at this moment found to be necessary is and need never exceed 100 tons. Boxes which receive closet manure from factories are here emptied in large numbers, and though both at the original receptacles and at the deposit itself a deodorising powder was freely used, the place emitted a strong faecal stench, doing its best to warn the corporation of the mischief they were doing.

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*On the  
Sanitary State  
of Leeds, by  
Dr. Hunter.*

State of Leeds  
in Aug. 1865.  
Midden filth.

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\* "The principal cause of the excessive diarrhoeal mortality in Leeds is unquestionably the state of the privies, which are often contiguous to houses, each serving in general for a whole court, or at least for several dwellings. Judging from experience elsewhere, it is most probable that if the diarrhoeal death-rate of small districts in different parts of Leeds could be accurately determined it would be found to vary greatly, and would sometimes be very large. On the other hand, the incorporation of several populous outlying hamlets in the registration district probably lessens its diarrhoeal death-rate, for nuisances likely to be very prejudicial to health in the midst of an area densely covered with buildings may, perhaps, be tolerated with comparative impunity in more thinly occupied districts. While much remains to be accomplished for the sanitary improvement of Leeds, it is gratifying to observe that the more energetic removal of nuisances recently practised has been attended by a decrease in the diarrhoeal mortality. There seems indeed no reason why the mortality from this disease should not be yet more largely diminished if a more perfect system were adopted for speedily removing the ordure of the inhabitants from the midst of the town." Dr. Greenwood's Report on Diarrhoea in Leeds in 1859, in the Annual Report of the Medical Officer of the Privy Council.

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Although not far from the centre of the town the deposit (as was alleged) was not in a very populous part, because a great part of the surrounding buildings were mills and factories. But people filled these places all day, and Mr. Wheelhouse, F.R.C.S., informed your inspector that in whatever part of the town they lived fewer followed those people who worked within scent of this obviously ill-placed and ill-managed deposit. A division of the borough into about 12 districts or beats, with fixed days of work, would secure better work and real responsibility. A few carts with orders to clean out the whole of a certain beat, and to carry the midden filth out of the town, if relieved of the compulsion to work at night only, except in the thoroughfares, would do the whole easily. They would, however, require an independent inspector to keep them up to their work.

Some change of system has since been adopted, and the middens, though not yet creditable, are certainly better than they were.

The cleaning of these middens had been, by resolution of the corporation, excepted from the supervision of Mr. Swale, the inspector of nuisances, and placed under the control of the officer, Mr. Sands, who afterwards came to have the duty itself of cleaning to perform. This resolution dates from 26th March 1863. The matter was called "the night-soil department," and the term is taken to include all undefined non-structural privy nuisances. The operation was in 1863 let to a contracting company, then afterwards assumed to be performed by the corporation, and just now has been let to a contractor, who is to be paid at the rate of 1s. 5d. a ton, and who must empty the whole of a given list every week. This contract is subject to two months' notice of its determination. The list is to be obtained partly from private complaints, and partly from notes made by a travelling officer to each of the three divisions of the town. These men are intended to see that the list given to the contractors is properly attended to. The contractors have no interest in the sale, and are therefore not tempted to leave the hard coal and rubbish behind.

An inquiry made of the head of the night-soil department elicits that in the month ending 7th July 1865, 1,227 pits were cleaned, and that 126 remained on the books for clearing. This remaining number can only mean 126, of which notice had been given in the right quarter. The whole number, if of middens, which required cleaning, might have been found in any dozen streets with their attendant entries. High as the number seems, it will require to be repeated at least every month of the year, to keep up with the current necessity. About ten times the number of clearances are made annually in the comparatively clean borough of Bradford, with half the population.

In the near and very similar town of Sheffield the work of removal is done at private expense, and is much better done than in Leeds, where it costs the corporation 3,000*l.* a year. At Sheffield fixed gratings protect many of the middens from having pots and stones thrown in, and the farmers remove the manure directly out of the town without a deposit.

The ordinary course of the Nuisance Removal Act is stopped at Leeds by the local authority being itself the offender, private persons being prohibited by prosecution from exporting midden filth from the town. The question should be decided whether the inspector of nuisances under the Act can be subject to have his action limited by resolution of the local authorities.

The chairman of the health committee of the guardians and several medical practitioners, backed by the expression of common opinion at the meetings mentioned, said that the drainage and river system was



unnecessarily offensive and injurious.\* The drainage system itself excludes from from its district many populous streets, and the drains are said to be incapable of either ventilation or of flushing. People who lived near the gully holes were, as was repeatedly affirmed, glad to try every means to exclude external air from their houses.

The river Aire itself is but an open drain, though through having a great volume of water it does not seem to be offensive while in the town, the side or by-waters are however black, and stink in dry weather. The most offending water of all is the brook called Sheepscar or Mabgate Beck. This is an open stream winding through the borough, and which, after receiving the excrements of numerous houses and factories, dribbles through a thickly-peopled district into the Aire. This beck has been the cause of much stench, and in the opinion of medical practitioners of much disease. Your inspector was credibly informed that it had not been cleaned for many years, and saw vast quantities of black sludge in it, but a cleansing was commenced soon after his visit. The explanation of the nuisance was, as before, that the duty belonged to the corporation, and that therefore that authority's inspector could not move to enforce its removal. The corporation covered the Holbeck a year ago, but is not inclined to do the same by this important drain; indeed, it would be doubtful policy to do so.

Within the drainage district, in some of the best known streets, were houses, along the fronts of which the town's drains passed, but with which no communication had been made. House owners, living at a distance, complained that they had no information of the making of the drain, and thought the ordinary notices, such as were issued by the paving boards, should have been sent. The tenants were represented in one instance as having made their requirements in the wrong quarter, and the drain passed on.

The border of the drainage district was so defined that even the most noxious stream might be within a few yards of a drain, and on advantage be taken of the proximity. This was represented strongly to the corporation on the 29th September.

In a great many streets privies may be seen forming with the ash-midden a part of a ground floor above which is a shop, a parlour or bedroom or larder. In some streets the majority of the privies are so placed. Take this instance in Holbeck which Mr. Hole has supplied from his forthcoming work called Homes for the Working Classes.

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of Leeds, by  
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Structural  
defects.

Street.	No. of Houses.	No. of Privies.	Privies under Bedrooms.	Privies in Kitchens.
A.	71	14	8	5
B.	24	5	2	—
C.	30	5	3	—
D.	20	7	5	—
E.	24	7	3	—
F.	36	7	2	—
G.	56	4	—	—

Some of these are lately substituted for a group of uglier but less noxious outhouses. Some such were being constructed in September

\* It is the neglected and incomplete state of the drains which is here complained of. The reporter does not pretend to criticize the scheme of drainage of Leeds, which was the work of an eminent engineer.

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1865, although the corporation has the usual powers of inspection of new plans. That a town may be cleared of all such abominations is almost proved by the fact that not one is supposed to remain in Sheffield, the magistrates there and elsewhere having made it a sort of rule that on the facts of such a case being proved an order to abate the nuisance shall follow. Indeed the towns must be very few in which such things are known, and they are clearly unnecessary. It was natural to inquire why the inspector did not clear them all away. He explained that the town clerk was not of opinion that he could obtain a conviction under the Nuisances Removal Act. Leeds is governed by a Local Act, and has not adopted the Local Government Act. The corporation has under consideration the necessity of applying for a new Local Act, in which powers to deal summarily with a variety of present and future nuisances are proposed to be taken; and it would seem as if, until the new Act is got, the ordinary course of law will not be forwarded even to abate these indefensible nuisances about privies. There are hundreds of such privies, and the rooms above, though called bedrooms, are sometimes the only rooms possessed by a family for day and night use. There were privies which presented a variety of other defects. There was seldom to be seen a grating or riddle through which the ashes had to be passed into the receptacle, and consequently large pieces of cheap coal and rubbish soon filled up the space. The orifice of the midden was even in large highways often turned to the street, and often unprotected by any door. There were properties without any privies or ash pits at all, yet quite within the town. Then comes the result of filthy and inadequate accommodation, the public urinals, such as the large one in Hunslet Road, become receptacles and the cleaning of these follows the usual rule of sluggishness. Some middens are so built that the ashes of a few days so block the entrance that the cavity within is useless. Nor is midden filth the only filth which is permitted to abound; in Back Lane, for instance, ash heaps of many years lie undisturbed; in Neal's yard there is in addition a store of manure "brought from all parts," and not far off the corporation has a noxious dépôt for street and market sweepings in a thoroughly urban situation. Preserved meat making, bone boiling, and other noisome trades flourish. In a narrow lane called Back Lane the store of putrid bones is sometimes so great that the maggots work through the wall on to the public footway, where people on the other side of a lane but a few feet wide have windows opposite, or nearly so. Such lanes as this are *never* cleaned; to use the residents' expression, there is now in Leeds one law for the rich, another for the poor; but disease may level these distinctions.\*

## III. SANITARY ADMINISTRATION IN THE TOWN.

Proceedings of  
the corpora-  
tion.

Under these circumstances, in a town of 220,000 inhabitants, standing so thick in one whole ward as 157 per acre, where only 18 per cent. of the houses exceed the value of 10*l.*, and a much larger proportion are below 5*l.*, and where the death-rate has long been notoriously high, it is important to see what the inhabitants do for their mutual protection; and for this purpose inquiry was made at the Town Hall, for the inspector of nuisances, Mr. Swale, and he, evidently a willing and systematic officer, by order of the authorities, supplied the means of reporting the organization here existing for carrying out the Nuisances Removal Act.

\* On 26th May 1866, the justices ordered the removal of the Waterloo dépôt; the town clerk appeared to beg delay.

A scavenging and nuisance committee is annually appointed by the corporation. This committee has appointed Mr. Swale, inspector of nuisances, at 90*l.* a year, but has limited his action with the effect of preventing his busying himself with the results of the inefficiency of their night-soil department. Mr. Swale has an assistant officer, and has the most responsible duties of an inspector, the management of smoke informations, of structural defects, of millponds, and offensive trades. He also draws all the informations and conducts the prosecutions against nuisances, just as is usually done by an attorney.

A list is subjoined of the summonses which have been taken out by the corporation,\* and one may observe that those taken under the Nuisances Removal Act have been usually of no effect.

The limitations of Mr. Swale's duty as regards the corporation's cleaning of middens has been explained; but the strong pressure put on him to prevent action in minor cases, must, to obtain credence, be quoted from the journals of the committee, 2nd September 1863: "Resolved, that in every case of conviction no expenses be allowed to the inspectors for cases brought before the justices, except where the defendants have been committed to gaol in default of payment."

It need hardly be explained that the Justices everywhere often make an order, and, in sympathy with the poverty of the defendants, think the corporation may pay its own costs. The officer at 90*l.* a year is not likely to run the risk, especially as he may naturally take the resolution as a hint to be quiet.

The committee meets monthly. At the last recorded meeting, in August 1865, there were no orders or communications to the inspector, who reported that he had (for the first time) taken out some summonses without waiting to consult the monthly committee. He had dealt with 64 cases of nuisance in August, but only a portion were abated. The care of slaughter-houses is assigned to Mr. Higgins, and the assistance of the police is invited by the committee.

In 1859, Dr. Greenhow reported to this Department on the prevalence of diarrhœa in Leeds. He describes the town then very much as it is now, lamenting the bad state and position of the privies, and showing how nuisance and disease have gone together. He says a "more energetic removal of nuisances recently practised has been attended by a decrease of diarrhœal mortality." This removal must now be less energetic than then, as it has been this summer sometimes little more than absolute suspension. It is impossible to compare Dr. Greenhow's statistics with those now issued by the Registrar-General, through the change of area; Dr. Greenhow reports on only half the present population.

Dr. Greenhow relates that in 1859 cellar dwellings were rare; they are now very numerous indeed.

## APPENDIX.

No. 6.

*On the  
Sanitary State  
of Leeds, by  
Dr. Hunter.*

Dr. Greenhow's  
Report of 1859.

Cellars and  
lodgings.

## \* LIST OF SUMMONSES taken out by the Corporation.

—	Improvement Act.	Nuisances Removal Act.	Diseases Pre- vention Act (?)
1861 - - -	56	16	—
1862 - - -	64	14	—
1863 - - -	18	13	43
1864 - - -	—	10	1
1865 - - -	2	14	6



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*Sanitary State*  
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*Dr. Hunter.*

The only conditions for inhabitation of cellars under the Leeds Act of 1842, was that they should have a window and fire-place. In 1848 a new Act was obtained, which, though it adopted many of the Towns Improvement clauses, left the cellars as before. Even these trifling conditions are barely exacted. The higher class of the authorities wonder where the people are to go if the cellars be shut up, and the guardians' officer, Mr. O'Rourke, said there were plenty of cellars which were coal cellars 10 years ago, but are now the only room of one or more families: "We are going to have a worse job than ever through the new railway, and if cellars are against the law you must send down 3000 tents from London;" nor, as afterwards appeared, was there much exaggeration in his words; but it is well to observe, as bearing on the necessity of all this, that there is not a cellar bedroom known in Sheffield.

Inquiry was made about the administration of the Common Lodgings Act. A committee appointed by the corporation for the purpose seems to meet annually. They have an inspector, who seems to be a good officer; he says he reports to the committee every Friday, but there is no record of such reporting in the book produced as the committee's minute book. The inspector is assisted by two detectives, and all three are on the police force. One of these officers, at least, visits each of the 132 lodging-houses every day, and looks out for suspected houses by night. The definition of a common lodging-house in use is a house where poor travellers are taken by the night. This term of occupation of the bed is an unnecessary limit, opposed to the opinion of Chief Justice Cockburn and Vice-chancellor Wood, as published by the General Board of Health, 17th October 1853, and obstructing the operation of a law highly necessary in Leeds. The price of a night's lodging is 3d., no charge being made for the seventh night. The surveyor's clerk measures the rooms, and the inspector allows 300 cubic feet per head. The largest of these houses received 70 persons.

A number of these houses were visited; Gill's, Glover's, Welsh's, Hunt's, and Northrope's, were sufficiently good. The Irish houses were untidy; but two cases require some remark. Pattison received by permission of the authorities 28 persons into a house without chamber-pots or a yard into which the filthy buckets and cloths could be put. Without permission, but under their eye, discovered in a moment by any stranger, he kept another common lodging in a cellar which rose but nine inches above the ground. The other case for remark was that of Blind Tom, who seemed to register only one of many lodging-houses, which will be seen by the appended detail to have been intolerably crowded.

There is a large so-called model lodging-house, which receives with care and decency 171 men, and which is said to find an encouraging profit in this excellent work. Here only are there partitions between the beds.

The rents of new cottage-houses are about 3s. 6d. or 4s. Your inspector visited houses to compare the rent with the accommodation.

163 York Street, a cellar, furnished, totally underground, 6 feet high. Rent 4s. a week.

6 Off Street, a cellar, 4 inches above ground, 7 feet 2 high, let for 1s. 6d. to a pair with 2 children.

Off Street, a cellar, furnished, totally underground, 4s.; 2 full-sized beds.

Off Street, a cellar, 6 inches above ground, 1s.; 2 full-sized beds.

Off Street, a cellar, totally underground, 6 feet 6 high; 1s.

Off Street, a cellar, totally underground, under 6 feet high, 1s. 2d. ; 6 persons to one bed.

Off Street, a cellar, 6 inches above ground, 1s. 2d. ; 2 beds for a pair with 4 children.

Off Street, a cellar, 8 inches above ground, 1s. 2d. ; 2 great beds for 6 grown-up people, whose united earnings were probably 5l. a week.

An experienced resident here said that threepenny lodgers were received nearly every night in nearly all these cellars, few or none of which had any area at all.

In Union Street a house was observed in which were two full privies with their receptacles of dung. Upstairs were a bedroom and sitting-room en suite ; wonder was expressed that fever had not yet caught the inhabitants, and in a few days two were thrown down by typhoid.

Ebenezer Chapel Schoolroom is over a privy and ash midden.

In Clarkson Court, a woman and two children lived in a cellar of 500 feet cube, the cellar actually adjoined a dung-pit. The woman sold a few vegetables, she paid 1s., and said she could well pay for a little house if there was one.

Ebenezer Street and its yards might possibly have shamed the authorities for removing night soil, if they ever went near it.

Happily for Leeds, the guardians of the poor for Leeds union, which comprises about half the borough in number of people, considering the state of the government of the town, and considering, as the vice-chairman pertinently put it, that they had a *more direct interest* in the health of the poor, supply by laborious voluntary exertion and through the good accord which exists among the officers much of the lawful authority's default. The mutual good feeling of co-ordinate public bodies arrests the guardians at every point where their action seems to impugn that of the corporation, else they seem as if they might have cleaned their union long ago. But all this activity is unlawful, and is founded on the fiction of the Diseases Prevention Act being in force, and that the guardians are therefore the local authority for certain important sanitary purposes, though, by the bye, it may be observed, that even if the Diseases Prevention Act were in force, and the guardians were administering that Act, they would not thereunder acquire any powers whatsoever with reference to the removal of nuisances, such powers being vested wholly and absolutely in the Town Council as the local authority under the Nuisances Removal Acts. Under this fiction, which seems to have been suggested to them in good faith by some of the corporation two years ago, and to have been adopted in equally good faith, but in error, the guardians have by the appointments of Inspectors O'Rourke and Holmes, and by fees to their medical officers, carried on a very efficient action against a certain class of nuisances, and within their union, the guardians of the other union not having as yet commenced a similar practice. They have succeeded in getting the expenses passed, and have obtained numerous convictions before the Justices, all their proceedings being announced as being done under the Diseases Prevention Act, and the forms drawn under its authority.

This may, to a certain extent, explain the growing apathy of the corporation, but it must be remembered that the guardians distinctly excepted all interference with the night soil from their province, complaints on this subject being always "referred to corporation."

This part of the arrangement pressed a little heavily on certain owners of privies, for the guardians would punish for the oozing of liquid through the receptacle's wall, while the poor owner had no

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Proceedings of  
Poor Law  
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 Dr. Hunter.*  
 —

means of getting removed the tons of material which were there enough to force liquid through any possible partition.

The guardians appointed a committee, which met weekly, and which at every meeting disposed of so many nuisances that the number is now, after two years' action, about 4000. Their nature and numbers are found in the subjoined report of the inspectors. Whenever a complaint was made to the corporation which could by any means be made to come within the terms of the supposed Diseases Prevention, the complaint was referred to the guardians, who, having once begun, certainly did the work of the Nuisances Removal as well as could be possibly done, where the great offender was beyond reach of the law.\*

Your inspector has no doubt of the genuineness of the misapprehension, because of the unflinching way in which the aldermen and councillors assured him that the corporation had nothing to do with the administration of sanitary laws.

The details of the action of the guardians form the best account of the present state of the poor of Leeds, and the following extracts from their officers' report are worth attention :—

“ Report respecting the Nuisances removed and the other work accomplished, under directions in agreement with the Diseases Prevention Act, from January 27th, 1863, to September 7th, 1865.

“ We have classified the work done under the following 11 heads :

- 66 cases of defective drainage removed or abated.
- 62 cases of offensive smells removed.
- 79 filthy privies cleaned out and put in repair.
- 45 privies built.
- 112 general nuisances removed or abated.
- 60 houses visited and found not overcrowded.
- 484 lodging-houses and cellar dwellings visited.
- 170 lodging-house and cellar-dwelling occupiers summoned before the committee and cautioned.
- 42 lodging-house keepers convicted for overcrowding.
- † 57 orders to whitewash dirty and unhealthy dwellings.
- 3,513 cases of overflowing ashpit middens and grates stopped up, which have been handed in to the Town Council.”

The following Convictions were made by Magistrates under Medical Certificate obtained by the Guardians :

- (1.) The series of informations on nightly inspections begins 9th June 1863 with an instance in Brick Street. In the kitchen were 3 women; in the chamber 4 men, 2 women, and 2 children; 3 of the men were lodgers and young. Fined 2*l*.
- (2.) Lemon Street. Chamber, 3 beds, in one a man a woman and 3 children, in another 2 men, in a third bed 3 women. Dimensions 14 ft. 4 × 17 × 7 ft. 3. Fined 1*s*.

These were simply overcrowded; but the next was certified to be filthy also, and here the Justices fined 20*s*. and ordered the house to be closed.

- (3.) Detail: “ In the second chamber I found three beds, in one were 4 women, in another a woman with 3 children, and a third 3 men.” Dimensions 13 × 14 × 8 ft. In the cellar was a great accumulation of putrescent matter.

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\* The very last (27th September 1865), an offensive boiling trade, was referred to the guardians.

† The corporation does not, as at Birmingham and other places, supply lime or lend brushes for this purpose



There were 40 of these prosecutions, of which however only 4 had occurred this year, 1865. They were as follows :

- (4.) In Union Street, 2nd May 1865. The medical certificate describes the house as an "overcrowded lodging house, the most disgusting and filthy we have ever visited." Every room was occupied. Fined 20s. House closed till certified fit.
- (5.) In York Street, 19th May 1865. A small room and a damp dark cellar are certified to be unfit to be occupied as sleeping apartments. In this cellar slept 3 women and a man. In fact this house was succursal to a registered common lodging house kept by the same man. Fined 20s. House to be closed "until made satisfactory to the Medical Officers."
- (6.) Baptist Court, 16th August 1865. In the cellar 1 man, 3 women, and 5 children. Dimensions 12 ft.  $\times$  12 ft. 6  $\times$  6 ft. 6. Fined 40s., and house closed until certified.
- (7.) Dufton Street, 23rd August 1865. Inspected at 2.15 a.m. In the kitchen, one woman and a child. In the chamber 2 beds. In one 2 women, in the other 2 young men. In the garret 3 beds on the floor, on which slept 3 women and 10 children. "No ventilation." Dimensions of garret 13  $\times$  14  $\times$  7 ft. Fined 20s.

The search for crowding by the Guardians' officers is not relaxed, eight instances were reported on the 23d of September; and at St. Saviour's Row a man, 3 women, and 5 children were found sleeping on shakedown in one dirty chamber. In Giles Square, in the garret, the "first shakedown" held a woman with 6 children, and the whole house of kitchen, chamber, and garret, held 18 sleepers, each enjoying 81 cubic feet of air. No. 7, New Row, the chamber held 3 beds and 8 persons. At No. 5 every room was occupied. In Philip's Yard the kitchen had two clean beds, both full; in the chamber two more, both full; one man here had lately returned from the Fever Hospital. The inspector entered a lodging house in Dunn's Yard and found only a kitchen, chamber, and garret,—all full; there were 17 persons enjoying 175 cubic feet each. They state that this is one of many houses rented by Blind Tom, which he lets off as furnished lodgings, and into which he puts persons whom he cannot accommodate in his registered lodging house. In Cherry-tree Yard was a house of two rooms on the ground floor where slept 7 persons, while the flat above held 6, "living over most offensive privies." Another house in the same yard gave but 145 cubic feet to each sleeper.

One of these disease-prevention meetings was attended. Houses were ordered to be cleaned or closed, and the number to be accommodated was settled. Where about 40 persons used a privy an order was made to make more. The crowding cases were usually among the Irish; every room would be represented as being found full on a nightly inspection. Ten, only, had less than 150 cubic feet per head, though some much less. In one case 10 persons covered the floor of a room 12 ft. 6 in. by 12 ft. 6 in. In Union Street a cellar was complained of which measured 13 ft. by 12 by 6 ft. 6 in., yielding 999 cubic feet, and in it slept a pair with 6 children. The rest of the house was full. In a garret in the same street lived 3 women and 10 children who had 3 beds. A cellar in Baptist Court accommodated a man, 3 women, and 5 children on a shakedown.

The convictions do not express necessarily the particulars of the worst instances, but rather those in which determination to resist was shown, and where the offenders hoped the case was not bad enough for the Justices' interposition. At the last weekly meeting, on 28th September, there were 64 complaints made before the Guardians.

## APPENDIX.

## IV. WATER SUPPLY OF THE TOWN.

No. 6.  
*On the  
 Sanitary State  
 of Leeds, by  
 Dr. Hunter.*

## Water supply.

Dr. Greenhow's attention was of course directed to the supply of potable water, and in this respect there is a change since his report. The water is now exposed at its source to much more of organic impregnation, but on the other hand it is now passed through a sand filter bed at Weetwood. All houses have access to a stand-pipe for water.

There are many persons in Leeds who think this water too bad even for an occasional draught to be taken with safety. An opinion as to its fitness must mainly be deduced from a consideration of its source and composition, for if it acts injuriously on health, such ill-effects would be general in the town, and could not be discriminated from those which are being generally produced by the pestiferous atmosphere of privies.

From the very first the inhabitants of Leeds who were competent to consider the question have been much divided in opinion as to the safety of drinking the Wharfe water. This water is obtained by pumping at Arthington, about 10 miles north of Leeds, and was chosen as being the cheapest source, although it was generally admitted that the quality of the water of the Washburne and Skirfare was better.

The Wharfe water was said to be always rather hard in summer. It washes through many miles of limestone, and now is beginning to receive the scourings of new lead mines. As it descends its valley it passes the large invalid population of Ilkley, and then through a populous country passes the town of Otley, the sewage of which to an increasing amount runs into the stream. The quality of the water is also deteriorating through the increased quantity of purer water abstracted from the tributaries to supply Bradford. These evils though now increased were well known at the time the scheme was adopted, but it was hoped that the filter beds at Weetwood would prevent any mischief from arising. Before reaching the filter the culvert receives a few small streams. At Weetwood, before filtration, the sample water No. 2 was obtained for analysis. Here are three sand filter beds which are described as being regularly changed and cleaned. On the surface of the sand was a great amount of filth whose passage had been arrested. This filth proved on analysis to contain, besides moisture, a proportion of nearly two fifths of organic and combustible matter. The sample No. 3 was obtained from the Dome after filtration. Here it was evident that much loose vegetable matter was floating which could not have passed the filter. It was rapidly running down to Leeds; but, as the officer in charge said it was unusual to see so much, the taking the sample was delayed until the water seemed clearer. The appearance was of long brown threads floating in pure water, and these probably came from the interior of the small drains beneath the beds.

Charcoal filters are in use among the inhabitants of Leeds, and their use under existing circumstances is doubtless to be commended.

On May 10, 1862, Mr. J. W. Leather, C.E., addressing the Corporation, speaks of the Wharfe as an inferior source, likely to become very rapidly worse, and quotes the opinion of Mr. Darnton Lupton, who on Nov. 9, 1861, had said that excremental matter of towns and villages to a great extent falling into the Wharfe must have a serious effect. Mr. Leather proceeds, "there are whole streets in which the objection to drinking the town's water is so strong that Holbeck Spa water is purchased at almost every house for drinking and culinary purposes." Mr. Leather adds, that filtered water is spoiled water, unpleasant to begin with, and rapidly deteriorates. And also that filter beds cannot arrest the passage of animal secretion.

The following letter on the subject of the river Wharfe has been communicated by Mr. C. L. Dresser, C.E., F.C.S. :—

Mr. Dresser says,—

“The water supplying the town of Leeds is pumped up from the river Wharfe at Arthington, about nine miles north-west of Leeds, thence it is conveyed through three reservoirs to the town; one of them contains filter beds.

“The Wharfe rises amongst the Western Moors and has a long course, receiving during that course the washings of a great many lead mines. The lead mines nearest to Arthington are the large ones of the Duke of Devonshire, about 20 miles distant. These mines pour into the river vast quantities of lead ore washings, highly charged with barita water; but whether this is carried down to Arthington, or deposited in the course of the river, I do not know, as there has been no analysis made for the special purpose of endeavouring to detect it. It is generally believed among chemists that barita water is highly poisonous.

“Down the stream about four miles, is Bolton Bridge, and two miles lower down is Addingham, a considerable village; both these drain into the Wharfe. Four miles yet lower down is the large watering place of Ilkley, a considerable town, which has several extensive hydropathic establishments. The town is drained into the Wharfe, and of course all the spent water of these establishments runs into it. Near to Ilkley, at Burley Wood Head, has been recently erected, by Mr. Gill, large bleach works, which send the whole of their spent chemical matters through Burley Beck into the Wharfe at Burley. Yesterday I inspected this beck and a dam into which it empties itself at Burley previously to running into the river. The water in the dam was exceedingly foul, and nearly as black as ink with chemical matter. I consider this a serious source of defilement, as no filtration can separate chemical matter. The whole of the large village of Burley drains into the Wharfe, as also the gas waters of the gasworks at Burley Mills; the water has here lost its transparency. Two miles lower down is the large town of Otley, where there are several extensive mills, manufactories, tanneries, and a paper mill, and the whole drainage of the town is poured into the Wharfe. Yesterday I inspected the different sources of defilement at Otley. At Mr. Ackroyd's worsted mill two years ago (when I first inspected the river,) there were three drop privies to this mill, used by many hundred of hands, and all three of them were sending their night-soil into the river, and though they have taken some precautions with two of them, yet during wet weather they must materially defile the water; but for the third privy there is no pretence of protection, and it is literally spouted into the river. They also wash a large quantity of wool at this place, and yesterday the whole surface of the river was whitened over with these washings for half a mile down, and indeed could be followed for miles. Between Mr. Ackroyd's mill and Otley Bridge there is another factory on the river from which the night-soil from the privies was carried by an open spout into the river. They have now I perceive improved on this matter, and the soil is carried into the river in sanitary tubes so as not to offend the eye. A little lower down, at Otley Bridge, the new main drain of Otley enters, and through it of course all the sewage of the town and into which are also emptied all the pits, tanneries, and the fellmongeries; and yesterday when I was there this sewer was running strongly with spent tan water as red as blood. On the opposite side of the river the two fellmongeries have a stage from which they wash weekly about a thousand skins from the lime pits. I witnessed this process which made the whole of the river as white as milk, and the stench from the skins was almost unbearable. A little below Otley Bridge is the large paper mill of Messrs. Garnett, where a vast quantity of rags, English and foreign are washed, and the washings emptied into the river. Coloured papers are also made here, and the spent colouring matters are discharged into the river. I witnessed a discharge of this kind yesterday, when one of the goits was running full with thick green liquid. The condition of the river below this mill baffles description. I do not remember ever seeing a sewer run fouler water than the water of the Wharfe at this point yesterday. The distance from Arthington to Otley is four miles, and there is a cloth mill and another paper mill betwixt them, where of course the river receives additional defilement. There is no doubt but that a considerable quantity of the mechanical impurity

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Mr. Dresser's  
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Sanitary State  
of Leeds, by  
Dr. Hunter.

subsides during its course to the pumping engines, and that is made evident by the state of the river bed and the stones which are as foul as any open drain.

"Betwixt Otley and the pumping engines there is the river Washburn a pure and pellucid stream, which runs into the Wharfe, and discharges in dry times about 2,000,000 of gallons per day; this might easily be made available for the supply of Leeds."

This river is the water source of all Leeds, and this description may be taken as the case of all the complainants against the Corporation, as regards the drinking water.

It is true, however, that certain chemical analyses\* which have been made do not, in the opinion of those who made them, testify to the presence of any hurtful ingredients in the water; and in this respect a recent analysis† of Professor Miller's, as well as his former one, confirms Mr. Reynolds's results. Still, while entertaining no doubt of the accuracy of the analyses (so far as the present state of the science permits) I yet feel bound to express serious misgivings whether the

\* In 1859 Professor Miller made for this Department an analysis, of which the result is found in page 135 of your Annual Report for that year. In 1854 Mr. Leather printed a letter on the subject, in which were contained a number of different analyses relating to the subject, and in August 1863 Mr. R. Reynolds, F.C.S., made an analysis for the Corporation, when the concluding paragraph of his report was "I do not consider the traces of animal impurity detected in the samples A and B to be sufficient to give any ground for reasonable alarm as to the wholesomeness of the water." The Corporation, although receiving a very large profit from the present supply, is not inclined to deny or conceal the dirtiness of the source.

† The details of Analyses of Leeds Waters by Dr. Miller in 1865 are found in the subjoined Table:—

	1.	2.	3.
Colour in two-feet tube - - - - -	Opaque blackish	Yellowish brown	Pale yellowish brown
Odour - - - - -	Slightly putrid	None	None
Taste - - - - -	Rather offensive	None	None
Hardness on Clarke's scale - - - - -	11°·9	8°·2	7°·8
Do. do. after boiling 1 hour - - - - -	7°·4	3°·7	3°·4
Specific gravity - - - - -	1000·4	1000·23	1000·23
Total solids per imperial gallon - - - - -	36·88	13·60	13·52
Consisting of { Fixed salts - - - - -	31·28	12·40	13·04
of { Volatile and combustible matter - - - - -	5·60	1·20	0·48
Nitric acid - - - - -	Traces	Traces	Traces
Ammonia - - - - -	0·279	0·018	bare trace
	Cub. inch	Cub. inch	Cub. inch
Total quantity of gas per imperial gallon - - - - -	13·5	14·7	8·4
Consisting of { Carbonic acid - - - - -	9·5	1·8	3·6
of { Oxygen - - - - -	0·0	3·3	1·2
of { Nitrogen - - - - -	4·0	9·6	3·6
Ratio of oxygen to nitrogen - - - - -	--	1:3	1:33

The three samples were labelled thus:—

No. 1. River Aire, Leeds, September 25, 1865, collected by H. J. Hunter and R. E. Green. This sample was taken at Leeds Bridge.

No. 2. Wharfe water, as it enters the filter beds at Weetwood, September 26, 1865, collected by H. J. Hunter and J. W. Clark.

No. 3. Filtered water from the Dome at Weetwood, as supplied to Leeds, September 26, 1865, collected by H. J. Hunter and J. W. Clark.

question of the water's wholesomeness can be quite conclusively answered by those results of chemical experiment. It is certain that the River Wharfe, at and above the place where the water supply of Leeds is drawn from it, receives large and constantly increasing quantities of filth. It is certain that this pollution is not insignificant in proportion to the volume of the stream, for I saw on the surface of the filter-beds myriads of those scarlet worms which are characteristic of filthy mud, and heard of frogs being taken there by the bucketfull. And it is also certain that the water even after filtration sustains abundant confervoid growth, for such I saw floating loose in large quantities in the Dome, on their way to be distributed to the population of Leeds. Adverting to these considerations I cannot but think that the water, if at present wholesome, is of very precarious wholesomeness, and I should think it greatly to be desired that the town of Leeds, wealthy and populous as it is, should derive its water supply from sources to which no reasonable suspicion of unwholesomeness or uncleanness can attach.

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of Leeds, by  
Dr. Hunter.*  
—

No. 7.—REPORT by Mr. JOHN NETTEN RADCLIFFE on several concurrent Cases of PUERPERAL FEVER at MAIDENHEAD.

No. 7.  
*On Puerperal  
Fever at  
Maidenhead,  
by Mr.  
J. N. Radcliffe.*  
—

From the second week in October to the second week in November 12 married women in Maidenhead have been attacked with puerperal peritonitis, and of these 11 have died. The first six cases were attended in confinement by a certified midwife, named Kingston. The confinements took place in rapid succession, and four of the women lay ill of the malady at the same time. The seventh case was attended in confinement by Dr. Plumbe's assistant, Mr. Duke, a member of the Royal College of Surgeons, and licentiate of the Apothecaries Society, who at the time had medical charge of three of the patients suffering from puerperal peritonitis. The remaining cases were attended in confinement by Mrs. Kingston's daughter, also a certified midwife, and living with her mother.

With one exception, unfavourable symptoms showed themselves about 48 hours after the confinement, and in the majority of the cases, the disease ran a rapid course. In one instance, the patient died 60 hours after confinement, in another, four days.

Shivering, followed by more or less febrile reaction, and pain on pressure over the abdomen, ushered in the malady. The abdominal tenderness increased, tympanitic distension occurred, and in several cases there was diarrhoea, with or without sickness. Prostration rapidly supervened, the patient fell into a typhous state, and in one case only, of those which terminated fatally, was life prolonged to the 9th day.

The two groups of cases which had been attended in labour by Mrs. Kingston and her daughter occurred in such rapid succession, that the mischief was done before it came to the knowledge of the medical practitioners of the town. Of the first group of cases, three coming under Dr. Plumbe's observation at the same time, he at once debarred the midwife from continuing her occupation, the clothes she had worn whilst in attendance upon the cases were burnt, and she herself was sent to the sea-coast, where she remained three weeks.

The second midwife has also ceased her avocation, and she will not be permitted to resume it until a sufficient period has elapsed, to secure safety to her patients. The duties of the two women, are now being performed by a certified midwife obtained from London. Mr. Duke

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No. 7.

*On Puerperal  
Fever at  
Maidenhead,  
by Mr.*

*J. N. Radcliffe.*

and Dr. Playne (who had attended two of the cases of puerperal peritonitis) have also ceased to practice as accoucheurs for the present.

No fresh case of peritonitis has occurred since the 8th instant, and it is hoped from the present precautions taken, that the outbreak is now at an end. All the measures requisite to ensure security to women, who shall subsequently be confined, appear to have been taken.

The origin of the first case is obscure. Scarlet fever has been unusually prevalent in Maidenhead, but in one instance only, is the patient known to have been directly exposed to that disease. The woman attended in labour by Mr. Duke had visited a child sick of scarlet fever 48 hours before her confinement. She suffered slightly from sore throat in her subsequent illness, but no eruption was observed, and she died from peritonitis.

The local medical practitioners hesitate to express the opinion, that the midwives were the means of communicating the disease from one woman in labour to another, but their precautionary measures were very properly based upon the supposition that such might be the case. The supervention of the malady, in the single instance of labour attended by Mr. Duke, whilst he was visiting cases of puerperal peritonitis, the restriction of the disease to the women attended in confinement by Mrs. Kingston and her daughter, and its cessation after they had desisted from their avocation, are facts which are most readily explained by the conjecture, that the disorder was directly conveyed from one patient to another. And this explanation is consistent with what is known of the most common mode of propagation of puerperal peritonitis.

The deaths occurred in three different registration districts, the registrars of which live at some distance from Maidenhead. I visited the registrars of Bray and Cookham, and examined their registers. Nine of the deaths had occurred in the former district, one in the latter. The cause of death registered in one instance was "child-bed fever," in another "puerperal fever," in a third "peritonitis, inflammation of the lungs," and in the remaining cases "peritonitis."

No other women in the district suffered from puerperal peritonitis or died in childbed during October and November,\* or for many months previously. With the exception of the case under the care of Mr. Duke, the disease was limited to women attended by Mrs. Kingston and her daughter, none of whom escaped after the appearance of the malady.

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*Extracts from  
Reports relating  
to Outbreaks of  
Disease, &c.*

No. 8.—EXTRACTS from REPORTS relative to LOCAL OUTBREAKS of DISEASE in various Parts of ENGLAND, and from REPORTS on GENERAL SANITARY INQUIRIES.

a.—By Dr. MILROY on the Sanitary State of HARWICH.

*Sanitary State  
of Harwich, by  
Dr. Milroy.*

The sanitary condition of the town is much affected by its site. It stands on flat ground, only a few feet above high-water mark, resting on stiff clay. Water is everywhere come to within three or four feet of the surface. At low tide there is a large extent of a slimy oozy beach to the east and west of the town, and landward there are wet marshy meadows intersected with ditches, which are apt to be offensive.

The town occupies a small area, and the houses are very closely packed together, with no free space around almost any of them.

\* Sixty-six births were registered in the Cookham and Bray registration districts during October and November 1865.



Narrow winding courts run up from the main streets in rear of the better houses, and these courts usually contain numerous small dwellings, each occupied by more than one family. As most of the tenants take in lodgers, the crowding in the close ill-ventilated rooms is often very great.

The drainage works of the town were originally laid out in 1820, and subsequently added to in 1854. They are only for the carrying off of the rainfall and of the refuse water of the houses; none of the nightsoil is allowed to enter any of the drains. Hence throughout the town there is nothing but privies, or (in the better houses) closets emptying into cesspools on the premises. In the courts, there is usually but one privy to three or four families; sometimes only one for six or seven families. Occasionally the privy is within the room, at the side of the fire-place.

The nuisance of these receptacles is horrible in the extreme. The people are obliged to throw in their ashes, or sawdust, or other like absorbent matter, for the purpose of soaking up the fluid contents, which would otherwise ooze through the walls, and form puddles of urine in the court. There is, moreover, the utmost difficulty, and often the delay of a month or six weeks, after the application to have them emptied, before this is done, even when the people are willing to pay for it. This is owing to the circumstance that the work is left to private speculation, the corporation of the town having hitherto refused to take it into their own hands.

It is unnecessary to add, that when the emptying takes place the nuisance all round is intolerable.

Although none of the nightsoil enters the drains, the effluvia from the gratings in the streets, and from the outlet openings on the harbour wall, are apt to be extremely offensive. They have not been systematically examined or inspected during the last 10 years, I understand. There is no surveyor attached to the corporation.

The state of the open gutters and gratings in the courts is usually more or less defective; and as the pavement is often at the same time broken and irregular, the place is kept in a continual slop from the overflowing of the foul water.

\* \* \* \* \*

The water supply of Harwich is derived entirely from rainwater stored in tanks, and from surface wells. The water from these wells is so brackish that it is not used for drinking or cooking, but only for washing and cleansing. The tank water, gathered from the roofs of the houses, both looks and tastes smoky, if not filtered. A dense smutty deposit forms at the bottom of the tanks.

Many of the poorer inhabitants are very badly off for drinkable water; they have to buy every drop of their daily supply.

The defective water supply of the town is alleged to be the principal cause of the offensive state of the main drains, as it is only after heavy rains that they are ever flushed out.

Harwich was most severely visited in the cholera epidemic of 1849. No fewer than 86 persons perished (69 from cholera and 17 from choleraic diarrhœa) out of the small population of 3,829, or in the proportion of 22·4 in every thousand of the inhabitants. This is a far higher rate than was the case in London, and even considerably above that in Liverpool. Only two places in England, viz., Merthyr Tydfil and Hull, appear to have been more severely stricken than Harwich. The great majority of the deaths occurred between the beginning of July and the end of September.

The town has moreover of recent years experienced very fatal visitations of other epidemic diseases. In 1855 the death-rate was

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Sanitary State  
of Harwich, by  
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extremely high (30 per 1,000) in consequence, I was informed, of severe diarrhœa, measles, &c. In 1864 small-pox and scarlatina were unusually prevalent and fatal; and during the present summer there have been more cases of typhoid fever in the town than has been known for many years. Hitherto diarrhœa and other bowel disorders have not, it was stated to me, been more frequent or severe this season than usual.

Sanitary State  
of Harting, by  
Dr. Hunter.

## b. By Dr. HUNTER on the Sanitary State of HARTING.

Harting was visited in March 1865. The population was in 1861, 1,247. The register showed no deaths attributed to typhoid fever, but there were a few entries of "fever," "gastric," &c. which might be accepted as dirt-engendered causes of death. . . . More definite knowledge was however obtained of cases of persons now or lately suffering from a *continued fever*, in which the gastric symptoms were the most remarkable. Some groups of houses, where such cases had been, were visited with the results described below.

Like Tillington and other parishes of Midhurst Union, the inhabited parts of Harting stand on a porous or cavernous rock called there "Marm Rock." Unless the owners are very fortunate, or puddle with clay, ponds will usually empty themselves through natural drains. In a case mentioned to me a series of these cavities acted as a natural syphon, and drew water uphill from its proper receptacle. All this takes place of course as readily with cesspools as with other collections of liquid. The general remedies applicable to this state of things are, (1) to have as few cesspools as possible, letting each one serve two privies; (2) to puddle or cement the cesspools; (3) to roof or cover the cesspools to exclude the rain; and (4), lastly, to empty them as frequently as possible. Instances were numerous in Harting where none of these precautions had been taken, and where enormous cesspools of faecal fluid gaped in the gardens, or where dung had been allowed to heap far above the surface of the ground, confined only by the wooden boards of the privy seat. Such instances may be found in any village where the local authority neglects to carry out the duties imposed by the Nuisances Removal Act, but at Harting were a few evils of extraordinary magnitude. One of these was the custom of placing the privy, with its accompanying receptacle, on the steep hill-side, far above the houses, as may be seen at Billingsgate, and in a worse instance in Pannal's houses. In this latter case the houses stood at the bottom of a short steep bank, at the top of which was a straw-yard for animals, and also (much worse) a great choke-full cesspool. An open drain, full of odorous matter, passed by the side of one of the row of houses close to the wall; the space between the houses was too narrow for a man to get at it to clean it out, and here was abundant cause for the fever which was alleged to be frequent in the row.

Another enormous evil at South Harting is the defilement of the drinking water. On the skirts of the neighbouring up-park is a pond in which rises an abounding spring, the overflow runs in an even stream over a flinty-bottomed brook, which has the appearance of having been originally made artificially. This stream of beautiful water runs rapidly in winter, and in summer runs with diminished pace and volume on three days in the week, when the water in the pond is not run off in another direction. In the rest of the week the brook is nearly dry. The brook, after passing a field or two, enters the village on the property of Mr. George Vallar. Here a privy stands beside it, having no receptacle, and tumbling its dung into the stream. Lower down other owners have treated it in a similar



manner ; for instance, Mr. George Mundy's cesspool, overflowing (not with water, but with dung itself) discharges largely into it. Here and there the brook receives minor streams, which have been the drains of filthy property. Next below, the privy of the national school stands a foot or two from the stream ; in this case a wall has been built to keep the two fluids, the drink and the excrement, apart, but no cement or puddle has been used. Having now arrived at the cross roads which form the centre of the village of South Harting, the brook receives the drains of the surface of the highways ; and the authorities, who have in this parish made a number of most excellent highway drains, have unfortunately allowed private owners (in three instances at least) to insert private privy drains into them, a practice which (as a nuisance) should be forbidden by the board of guardians, even if the waywardens continue to allow it. The brook then passes underneath a pork butcher's house, shop, and slaughter-house. Here the family, three of whom were now under fever, were accustomed to take up a trap-door, and help themselves to water from the stream by means of a bucket. No other water ever entered the house. By the same trap-door the swillings of the slaughter-house, &c. were discharged into the brook ; there was no other outlet. Pigs were kept on the premises. The privy stood with its brimfull receptacle two feet from the brook, and high above it (perhaps three feet), and oozing through the wall was plainly discernable. Passing lower down the stream, the privy of the last house stood fairly astride of the brook, the excrements dropping directly into the water as they came from the bodies of the tenants. There was a well a few yards from the brook, which had been made a year or two before as a relief to this disgusting arrangement. It was 30 feet deep, and had a spring at the bottom. I was satisfied with the evidence that the brook leaked into it ; but as the brook is as much drunk of as is the well, this point is of minor consequence.

An unusual number of complaints were made of the dirty habits of neighbours.

#### c. By Dr. HUNTER on the Sanitary State of HADLOW.

Hadlow is a parish of Tunbridge Union, and is in the Tunbridge registration sub-district. It lies 4 miles north-east of Tunbridge, and comprises about 5,000 acres. The population is about 2,600, of whom about 1,000 are collected in the village or street called Hadlow, the rest are dotted in hamlets all over the parish. . . . The village is formed of small cottage properties, whose owners have crowded the dwellings on to very small ground plots, and have not always supplied sufficient wells and privies, or maintained the property in general in good repair. The inhabitants, most of whom work for farmers scattered over the large parish, have very few gardens.

All over the village there was, when I visited it on July 29, 1865, by far too much accumulation of animal and human ordure, of whether I saw it in its usual condition I could obtain no trustworthy evidence, but at that date the stenches that prevailed in nearly all the back courts were most noxious, and indicated great neglect in the removal of ordinary nuisances. This was the general character of the courts on the north side of the street where the bulk of the people reside. . . . Messrs. Cork and Cheeseman have some very bad unhealthy arrangements about their cottages. There is here no sewer, but the cesspool system prevails. Mr. Cheeseman claims to have built a privy on Mr. Cork's land, and there is a bandying of responsibility which an energetic inspection would soon overcome. As it now stands, the privy appropriated to Mr. Cheeseman's tenants has the cesspool

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beneath the seat and floor ; it is quite full of liquid ordure, and the floor, which of course ought to extend from the seat to the door, is entirely gone. This privy is therefore deserted, and the property may be considered without one. The tenants of both Mr. Cork and Mr. Cheeseman frequently use pots indoors, and trespass to Mr. Cork's privies, in which, having no responsibility, nor being under any control, they dung on every part of the closet, the children being unprovided for, and unable to use the seat the proper way. Again, Mr. Cheeseman has allowed the pump to remain useless, for want of repair for three years, so that his tenants must beg water of Cork's, where it is good and plentiful. . . . These properties being built on land sloping to the front street, the cesspools at the back were high above the house floors, and being full of water were always in danger of percolation into the wells and houses. I was told that in time of rain the cesspools would sometimes overflow, when their filthy contents would be spread over whole yards, and lodge in every surface drain ; some of these surface or sinkstone drains were ineffectual, and when opened displayed magazines of filth beside the doors of several cottages. At Leed's houses another specimen of bad workmanship was seen. The drain had opened into a rain-water tank ; it had since been diverted ; but the tank was so full of sewage as to be abandoned as a tank, and stood with a wooden cover just outside the house doors. . . . On Mr. Barton's property the store of manure was enormous. The well was very low, and the water was said to be offensive, though I could find no fault with it when I was there. . . .

When the well water is disturbed it becomes very hard, and then the people are glad to obtain pond water for washing, but I could not hear of any who were compelled to drink dirty water. Deepening the wells has not always succeeded in improving the supply. Mr. Nichol's well of 70 feet deep is, I am told, useless, on account of the saltiness of the water. The water of the river would be the natural supply, but, unfortunately, and as it would appear unjustly, this water is poisoned by a paper mill a few miles higher up the stream.

There runs through the village a main drain formed by covering, by a section at a time, the ancient course of a brook. This drain is of barbarous construction, and in its present state is not effective for its purpose. The smaller subordinate drains are still more defective. Along the street are gully holes and gratings, from which offensive stenches frequently arise on changes of temperature. When, as has been known, a flood occurred, so great that the drain cannot work, the poorer property has been laid under water, and the filthy mixture has filled the ground floors and wells. This is a very rare occurrence, it is 4 years since such a flood. . . .

What seems to be wanted at Hadlow consists of,—

1. A much more energetic enforcement of the Nuisances Removal Act, with regard to the cleansing of cesspools and other receptacles of refuse, and to the state of privies and private drains and sinks.

2. An amendment or reconstruction of the main drain, and provision against its being, as now, a source of nuisance, by the filth which stagnates in it and sends out effluvia from the gully holes . . . .

Dr. Hooker informed me that fever was unusually common at Hadlow, so much so that he sometimes heard of "Hadlow fever," as descriptive of a low gastric fever. He however had found it to yield to treatment, and the number of deaths was very small.

Sanitary State  
of Great  
Ormesby, by  
Dr. Hunter.

d. By DR. HUNTER on the Sanitary State of GREAT ORMESBY.

I visited the cottages in one of which the Smiths lost their three children last summer. It formed one of a little row of two, built a few

years ago of red brick, and now under the stewardship of Mr. Purdy. . . . . The ground floor consisted of a kitchen and staircase, and at one end of the row under the same roof with the houses stood a public oven and a privy. This privy formed a part of the house; above it was the children's bedroom, which extended over both privy and oven, and was open to the stairs, to which it formed a sort of enlarged landing measuring about 11 feet by 6. I have rarely seen this execrable arrangement, but was informed by Mr. Gillett that he could tell me of 20 instances in the neighbourhood. The door of this privy which serves the two houses is turned to the back of the row; there is little or no excavated receptacle, and the dung accumulates beneath the seat until it nearly reaches the top. There is a ceiling between this building and the floor of the bedroom. Beneath the privy seat, at the end of the building, the receptacle has a small opening about level with the floor, intended as a vent for liquid matter. Beneath the vent-hole was a very shallow pit, which was so offensive last summer that it was filled up and the vent-hole stopped by a heap of rubbish placed against the wall. The dung is removed every few months by one of the tenants. Thus there is above the level of the ground floor, within the house, beneath the children's bedroom, a store of human dung, I should think of two hundred pounds weight, increasing daily, and often exposed to a high temperature by the back wall being in contact with an oven in which 7 families baked. . . . I visited the national school; the cess-pool is in contact with the main buildings, and had, until a recent spouting, been full of liquid. There was occasionally a fecal smell, but it was reported to enter by the doors, not through the wall. There was a general ill appearance of the children too remarkable to be passed over. They looked depressed, almost to exhaustion, as if with diarrhoea or diphtheria. This appearance, with the general report of evening and morning smells, are among the principal reasons for thinking that there remains some active poison in the village.

e. By Dr. SANDERSON on DIPHTHERIA at WALTHAM ABBEY.

I find that a sewer which receives the drainage of the whole or the greater part of the town of Waltham discharges itself within a few yards of Mr. Lee's house into an open ditch with which it becomes continuous—and that this ditch, the inclination of which is considerable, passes, in its course towards the river Lea, by two houses, one of which is that occupied by Dr. Priest. I find further that a large proportion of the houses in the town are provided with house-drains and waterclosets, so that there is no doubt that the drain in question contains soil or sewage, and not merely surface drainage or other liquid refuse. Although at present the flow of water along the drain is so considerable that no offensive smell could be perceived at the time I inspected it, it is my decided opinion that even in its present condition it is likely to endanger the health of such persons as reside in its immediate neighbourhood, for the foul deposit which forms its channel is only partially covered with water. In dryer weather, and especially in summer, it is impossible to imagine a nuisance of a more dangerous character.

With respect to the nature of the disease which has invaded the family of Dr. Priest with such pitiless severity. . . . . I learn that of Dr. Priest's family, consisting of two adults and five children, five, viz., Mrs. Priest and the four youngest of the children, have been attacked. Mrs. Priest and two of the children (both of whom were under 10 years of age) have died, the remaining two being now in the way of recovery. Dr. Priest's eldest daughter, aged 18 has hitherto remained exempt. The first case that occurred in Dr. Priest's

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Diphtheria at  
 Waltham  
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 Dr. Sanderson.

household was that of a female servant in good health and of sound constitution, who had been in his service for several years. She was attacked on the 29th of October with symptoms of catarrh, which were at first of so slight a character as to be regarded as of little importance. On the 31st her fauces were inspected by Dr. Priest, who at once recognized the local signs of diphtheria, and sent her home to a village at some distance. About 18 months ago (or thereabouts) another member of Dr. Priest's family, a little boy aged 12, was attacked by diphtheria in the same house, and died after a short illness. In all the cases which have recently occurred the characters of the affection were those of malignant asthenic diphtheria . . . .

There appears to me to be no reason even for suspecting that the patient first attacked had contracted the disease by communication with any previously infected person or locality, for, as has been already stated, she had resided in the family for some time, and had had no intercourse excepting with persons living in the immediate neighbourhood. I am further informed by Mr. Eadson, who performs the duties of district medical officer, in the most positive manner that there have been no cases of scarlatina, diphtheria, or other allied disease in the town or neighbourhood for several months.\*

Considering all the circumstances of this lamentable event, it does not appear to me possible to avoid the conclusion that it was due to local causes, and that it would have been prevented if the nuisance of which complaint has been made so justly to their lordships had been effectually abated. And I am of opinion that no measure can be regarded as effectual for this purpose unless it comprises the complete covering of the sewer in such a manner that its contents shall be exposed to the air in no part of its course at a less distance than 500 feet from any inhabited house.

Scarlatina at  
 Aston Clinton,  
 by  
 Dr. Hunter.

## f. By Dr. HUNTER ON SCARLATINA at ASTON CLINTON.

Circumstances peculiar to the parish seem to me to favour the spread of this disease [scarlatina].

There were in 1851, 1,096 persons in 247 houses at Aston Clinton; in 1861, 1,297 lived in 277; figures which represent a rise of persons to a house of from 4·4 to nearly 4·7. Very few of the cottages had less than 2 bedrooms; but they were rather smaller than is usual. In such small cottages I found families of 7, 8, and 9 people in repeated instances, the adult girls remaining at home working straw-plait. There was another perhaps worse form of crowding at the "schools," or cottages where old women receive and keep in order a number of children of both sexes, who there sit plaiting all day, except the dinner hour. There were 6 such schools, and they were attended this winter by 151 children, a falling off from the old average. Lady de Rothschild had induced the keepers to shut up the schools for the past 2 or 3 weeks. Three of these schools were near together on the Western Road where the scarlatina had been most fatal. One school, kept by Mrs. White, was attended by 30 "scholars;" it measured 10 feet 6 by 9 by 6 feet 6 high. Another, Mrs. Philbey's, attended by 27 scholars, consisted of two little rooms, one 12 feet 3 by 7 feet 11 by 7 feet 9 high, the other a pantry, full of shelves and victuals, measured 8 feet by 3 feet 10 by 7 feet 9 high. One child told me she had known 40 children present in this school. Both these two forms of overcrowding seem to call for public interference, but are at present beyond the powers of the local authority.

\* This statement is confirmed by the registrar, who is also relieving officer, and therefore in constant relation with the poor.



No. 9.—LETTER addressed, April 19th, 1865, to the LORD PRESIDENT of the COUNCIL, by the MEDICAL OFFICER, on certain EPIDEMICS prevailing in the NORTH of EUROPE; with Supplementary Memorandum on EPIDEMIC CEREBRO-SPINAL MENINGITIS.

My Lord,

Whitehall, April 19, 1865.

I have the honour of reporting to your Lordship that the information which, under your directions, I have been receiving during the last fortnight, on the subject of certain diseases prevailing, or said to be prevailing, in the North of Europe, is now so far completed by a telegram yesterday received from Dr. Whitley at St. Petersburg, as to render possible a judgment, which I think may not be premature, on the very important question, whether this country, in its intercourse with the North of Europe, is exposed to more than its ordinary risks of being infected by disease.

The very alarming rumour which excited your Lordship's vigilance on the present subject, was to the effect that a disease of the nature of plague, coming from beyond the Ural Mountains, and causing depopulation in its course, had not only reached St. Petersburg, where it was said to be causing fearful ravages, but had spread beyond the Prussian frontier, and was prevailing, though in a less destructive form, at Dantzic and various other places in North Germany.

Telegraphic inquiries, however, which Earl Russell at your Lordship's request caused to be made of Her Majesty's ambassadors and consuls in the countries to which the rumour referred, led almost immediately to the establishment of two facts, which, while they fully accounted for the existing rumour, divested it in great part of its extremely alarming character. In the first place it was ascertained, that, though undoubtedly St. Petersburg was suffering a very great excess of sickness and mortality, yet at least the main part of the epidemic disease which was prevailing there consisted only of such fevers as are well known in this country. And in the second place it was ascertained, that, though a very frightful disease was indeed prevailing in parts of North Germany, and particularly about the Lower Vistula, this disease was altogether different in kind from the fevers which were prevailing in St. Petersburg. In proportion as time has permitted the ordinary postal communications to take place, the above-stated two facts have been established in more and more detail. And it may now, I think, be fairly assumed that there is no other important fact to be added to them.

First, as regards St. Petersburg,—the epidemic which is prevailing in that city consists of two forms of fever which are known in this country as *relapsing fever* and *typhus*. Of relapsing fever (which also, from the circumstances under which it prevails, is familiarly known by the name of *famine-fever*) we have had no large experience in this country since the years 1846–48, when, in consequence of the Irish distress, the disease first became epidemic in Ireland, and next raged in Liverpool and many other of our chief towns to which its contagion was brought by Irish immigrants. Typhus, on the other hand, is probably never absent from among us. During the last two or three years, there has been an almost unprecedented amount of it in London, and, as your Lordship is aware, inquiries relating to very large epidemics of it in Liverpool, Greenock, and Bristol have during the last few months been required of the Medical Department of the Council Office. In times when relapsing fever prevails (and always they are times of national

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*On certain  
Epidemics in  
Northern  
Europe, by the  
Medical Officer.*

scarcity) typhus always or nearly always co-exists with it. It was so at Liverpool in 1847, it is so at St. Petersburg at present. The mixed epidemic, wherever it occurs, testifies to the miserable state of a starving and over-crowded proletariat; and there seems reason to believe that, if the St. Petersburg epidemic is of more than common severity, this is only in result of extremely aggravated conditions of privation, over-crowding, filth, and district-unwholesomeness, operating on large masses of the lowest population. It is probable that the relapsing fever has caused particular alarm in St. Petersburg from the fact that the disease had never before prevailed there, nor indeed been much known anywhere in Russia. But it is a disease greatly less dangerous than typhus. To persons whom they respectively have attacked in this country, typhus has been seven or eight times as fatal as relapsing fever.

Both typhus and relapsing fever are communicable from person to person by means of the general exhalations of the sick; and the danger of such contagion acquires its utmost development when masses of ill-fed population are crowded together in places which are insusceptible of ventilation.

It seems probable that the fevers now prevailing in St. Petersburg are not only extensively diffused, but, in their respective kinds, are of fully average severity. The relapsing fever is causing more than its usual proportion of deaths, and is notably attended with those inflammatory swellings which are known by the name of buboes. Although the reports which are before me do not state the relative frequency with which the latter symptom is observed, yet, from the fact of its being mentioned in a very general report on the epidemic, I infer that it has been more than commonly frequent, and doubtless it was from this circumstance that there arose the rumour of plague. It is therefore requisite to mention that buboes are by no means exclusively characteristic of plague, that severe typhus in this country is not very infrequently attended by them, and that also in our other forms of fever they are sometimes, though far less frequently, observed. The great importance, however, of the question which is involved in that symptom of buboes was a main reason for your Lordship's thinking it desirable to have an English physician's report on all the elements of the St. Petersburg epidemic; and it was therefore that under your Lordship's orders I instructed Dr. Whitley to proceed to St. Petersburg for the purpose of making personal examinations in the matter. He arrived at St. Petersburg on Saturday night last, and his telegram which I yesterday received informs me in positive terms that "nothing resembling plague has been observed."

As regards the disease which is prevailing in parts of North Germany, the case is very widely different. That disease is one of which hitherto England has had no general experience. Even in foreign medical literature mention of it is but comparatively recent, and the knowledge which relates to it is incomplete. It is a febrile nervous affection of a very painful and very dangerous kind. By us, for practical purposes, it may be regarded as a new disease; but, in truth, it has for the last twenty-eight years been prevailing very extensively in successive small epidemics, both in Europe and in America, throughout the entire breadth of the north temperate zone. Having regard to the probability that sooner or later this disease may show itself in England, I have thought it convenient that, both for your Lordship's present reference, and for such further use as you may deem expedient, there should be compendiously stated the main facts which are yet known with regard to the disease's nature and laws of distribution; and I have accordingly pre-

pared a special memorandum in which, by reference to foreign authorities, I endeavour to fulfil that object.

Both on account of the alarming rumours which were connected with the present epidemics in North Germany, and also with a view to collect the latest and fullest information concerning the habits of so important a disease, your Lordship (as in the case of the St. Petersburg fevers) deemed it right that an English physician should be sent to observe and report; and, under your Lordship's orders, I instructed Dr. Sanderson to proceed for this purpose to those places about the Lower Vistula where the disease was chiefly prevailing. From him, during the last few days, I have received telegrams and letters which leave no doubt as to the identity of the prevailing disease, and establish, as I have already stated, that it has no dependence on the fevers of St. Petersburg.

In the special Memorandum to which I refer, I have stated what I can learn with regard to the communicability of the nervous disease. Your Lordship will observe that, though I hesitate to speak of the disease as incommunicable by personal intercourse, I show reason for believing that under ordinary circumstances it is not thus communicable in more than a very low degree. And Dr. Sanderson writes to me, in relation to the present epidemics, that he finds "no reason for regarding the disease as personally communicable;" that he has "met no single instance in which more than one member of the same family has been attacked; nor has there been any diffusion of the disease in any of the hospitals."

From the foregoing statement, your Lordship will have gathered that, neither as regards the fevers which are present in St. Petersburg, nor as regards the nervous disease which is occurring in North Germany, are the circumstances such as have on former occasions led to the adoption of quarantine by this country;—that, as regards the importability of the nervous disease, our danger in communicating with the Baltic ports (unless there were movement of masses of infected population) is apparently nothing, or next to nothing;—and that, as regards the Russian epidemic, our danger in communicating with St. Petersburg is only the same sort of danger as the several parts of the United Kingdom have often occasioned to one another, and are even at the present time, as regards the worst known forms of fever, daily and abundantly occasioning.

As, however, it is possible and even probable that, with the re-opening of the Baltic navigation, ships which come to our ports from Russian territory may occasionally have fever-cases on board, it is essential that, in places which this danger may affect, the local sanitary authorities should exercise peculiar vigilance against all those unwholesome conditions which favour the propagation of such disease. In this connection I would beg leave to advert to the short general Memorandum which, under direction of the Lords of the Council, I prepared in 1860, and have since then been in the habit of circulating, on the "Proceedings which are advisable in Places attacked or threatened by Epidemic Disease." As regards the class of places to which my present remarks particularly apply, it is scarcely needful to observe that the state of common lodging-houses, and of houses which are sub-let in several small holdings, ought very specially to be seen to, and that every possible care ought to be taken to provide lest they be left over-crowded and ill-ventilated. Except in connection with reckless personal association, there is little danger that febrile contagion will spread widely where the sanitary circumstances are good; but the advent of any such contagion into the poorer dwellings of a place tests, in a crucial and unflattering way, the sufficiency of their adaptation to health.

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Finally, with reference to the just-mentioned danger, and to others of a like kind, it seems imperative on me that on this occasion I should bring under your Lordship's particular notice the very unsatisfactory state of our sanitary laws in everything which relates to the migration, exposure, and housing of persons who are infected with the current contagions of the country, and who, in the absence of proper precaution, must communicate their disease to others. Complaints are frequently made that the public health of a district is seriously endangered by the arrival (sometimes from abroad, sometimes from other parts of the United Kingdom) of patients suffering with small-pox, typhus, typhoid fever, scarlatina, or some other malignant and more or less communicable disease; or that such patients are being lodged in houses where the disease can hardly fail to spread; or that, either in states of imperfect convalescence, or even during active disease, they travel in public conveyances or expose themselves in places of common resort. In the present state of the law the authorities who are charged with the local protection of the public health are practically almost powerless against these evils; and it would be over-sanguine to imagine that, within any small number of generations, the sanitary state of the poorer dwellings of the country will be generally such that the germs of contagious disease can with impunity be imported into them. I would therefore venture to submit to your Lordship that in my opinion it deserves the consideration of the Legislature, whether the hands of local authorities might not expediently be strengthened against the evil which I have described; whether, namely, such authorities might not, under proper qualifications, be empowered to require that persons who come with dangerous communicable disease into the district should so dispose themselves, in regard to lodgment and seclusion, as not, in any fairly avoidable degree, to endanger the public health.

I have the honour to be,

My Lord,

Your Lordship's most obedient servant,

(Signed) JOHN SIMON.

MEMORANDUM relating to the DISEASE which is now epidemic in parts of NORTH GERMANY.\*

The disease which is now prevailing epidemically about the Lower Vistula and in some other parts of North Germany, belongs apparently to the class of specific Fevers. It has for its distinguishing mark, that it involves an acute inflammatory affection of the great nerve-centres of the body—the brain and spinal cord. After death its traces are obvious to the anatomist in morbid structural states of those organs, chiefly of their surfaces and enveloping membranes; and it is from the characteristic affection of these membranes (the so-called “meninges” of the nervous centres) that the disease has got its technical name of *cerebro-spinal meningitis*. Specially in cases which have proved fatal

\* Statements of fact in this Memorandum are for the most part founded on the elaborate papers on cerebro-spinal meningitis, which are contained in M. Boudin's “*Traité de Géographie et de Statistique Médicales*,” and Professor Hirsch's “*Handbuch der historisch-geographischen Pathologie*.” The former was published at Paris in 1857, the latter at Erlangen in 1864.

otherwise than with extreme suddenness, the characteristic change is commonly found advanced to a degree in which it cannot well be overlooked; and, more or less generally throughout the cerebro-spinal system, the *pia-mater* (that delicate vascular membrane which is folded close about the nervous centres and their dependent nerve-roots) is found in a swollen and infiltrated, or perhaps suppurating or disorganised state. For practical purposes, this state of the covering membrane of the nervous centres may be regarded as a mere index of changes more or less destructive, which those centres, in their own intimate composition, have at the same time undergone; and hence it is that the essential phenomena of the disease during life consists in disturbances, more or less grave, of the functions of these all-important organs. The detail of the symptoms is not the same in all cases:—for sometimes it will be in one part of the nervous system, sometimes in another, that the onslaught of the disease begins or is most severe; and, according to minor differences of this kind, the outward signs of the disease may be more expressed in this or that section or function of the Patient—in trunk or head or limbs, in sense, in motion, in mind. But these differences are inessential. A first stage, during which the irritated organs of sense and consciousness become mere sources of racking pain and miserable restlessness and hallucination and delirium, while the muscles of the body are worked into partial cramps and tremors, and presently are tortured into all the terrible struggles of tetanus or epilepsy,—and a second stage, during which (correspondently with the more advanced disease of nerve-structure) the exhausted body lies comatose and paralysed;—two stages, thus respectively characterised, are, it seems, the sum and substance of the symptoms, when the disease stops short of being *foudroyante*. The sufferer who reaches that second stage hangs by a mere thread to life; perhaps at once to sink the little remaining distance to death; perhaps slowly and painfully to recover, though it may be only with nervous mutilation.

The symptoms with which the disease most usually declares itself are shivering, intense vertigo, headache of intolerable severity, violent obstinate vomiting, and painful muscular stiffness (which soon develops into tetanic contraction) particularly of the neck and back. And these symptoms come on together, or in close sequence on one another. While consciousness lasts, the distress in the head is incessant, and even during delirium or stupor the patient's instinctive movements show that his head is still a chief seat of pain. Tongue, pulse, and skin-temperature, are not very obviously affected. The patient's face is oftener pale than flushed, and his eyes (perhaps with reddened conjunctivæ and contracted pupils) have often a look of wild distress. In some cases the region of the stomach has been much complained of, and it perhaps deserves notice that, in a considerable proportion of cases, patients are said to have discharged ascarides from the stomach or bowels. Terrible restlessness and general muscular agitation are soon added to the other symptoms, and often there is such a sensibility of surface that every touch or movement causes agony. And now, often with more and more neuralgia, the muscular contractions become more and more uncontrollable and convulsive, and affect, as in common tetanus, all parts of the body. Deglutition becomes difficult or impossible, and the respiratory movements are rendered irregular and imperfect. The head is dragged tightly backward upon the neck, and the features are fixed in the characteristic grin of lock-jaw. Happily, meanwhile the progress of the cerebral disease is darkening the patient's consciousness, and rendering him less and less percipient of the tortures of his physical

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being. Delirium to some extent will probably have existed from an early stage of the disease, and now tends more and more towards stupor. And so the patient passes into coma, and into depression which is on the confines of death. To this stage he may have come almost suddenly, but generally there will have been a day or two of the former one. Before the stage of coma resolves itself in one direction or the other, six or eight days may have elapsed from the first attack, and even in this time the patient will have become very greatly emaciated. In the typhoid state in which he lies, he is apt to be profusely sweating. Sometimes the cavity of his mouth is lined with a coating which is almost diphtheric. More or less anæsthesia often exists, or sometimes in extreme cases a state of general muscular paralysis, or in other cases drooping of the eyelids or squinting. The pupils may be unsymmetrical, or both of them may be dilated and motionless. And now frequently the patient has eruptions on the skin,—sometimes petechial, sometimes more or less imitating the characteristic exantheme of typhoid fever, measles, or other eruptive fever, but oftenest of all in the form of herpetic vesicles about the lips.

When the disease is not in its abruptest form, death, if it occurs, is generally from the fifth to the eighth day. In the other event, the duration of severe disease cannot be rated at less than three or four weeks, and convalescence (such as is possible) may be a matter of even many months' duration.

Sometimes recovery is delayed or prevented by secondary diseases which supervene,—articular or serous inflammations or pneumonia, or inflammation of the mucous membrane of the intestines, or some other kind of complication. Sometimes the intelligence, especially the memory, is damaged for a time or for life. The hearing, which generally suffers to some extent, is sometimes permanently gone; and here, if the sufferer be an infant, he will be dumb as well as deaf for life. Vision is peculiarly apt to suffer, and, either through the central disease or by secondary ophthalmic inflammations, may be lost to one eye or to both. Sometimes it is the sense of smell which is lost. Sometimes headache continues for months. Sometimes parts of the body do not recover their common sensibility. And sometimes the patient's muscular paralysis is only imperfectly recovered from.

Marked attacks of the disease are not always made without warning. Sometimes, for hours or even days beforehand, the patient will have had vague premonitions of an attack, or, to speak more correctly, its first symptoms will have come on him gradually. Among such premonitions, slight shivering fits have been particularly observed. But often nothing of the sort can be traced. And often from a state of apparent health, amid work or sleep, or at a meal, or in the street, the patient has quite suddenly fallen into an almost explosive beginning of the disease, has rapidly passed into a state which is compared to the asphyctic collapse of cholera, and has died within twelve, sometimes even within six hours, from the attack.

It deserves notice that, while cases of the above-described gravest kind are occurring perhaps not very numerous in a place, sometimes, within the same area, or scattered over a wider one, a large number of other persons will suffer slight indications of similar nervous derangement. Headache, vertigo, muscular discomfort in the head and limbs, and attacks of chilliness, are the chief of these minor indications, which apparently bear to the graver cases the same sort of relation as epidemic diarrhoea bears to concurrent epidemic cholera, and which tend



after two or three days to the crisis of a profuse general perspiration. Probably these cases are of very different degrees of severity, and are not separable by any abrupt line from the severest manifestations of the disease. It is said that in proportion to their severity they share the common character of the disease in being but very slowly recovered from.

Though cerebro-spinal meningitis in its epidemic form has hardly been scientifically described till within the last 30 years, the conclusion does not follow that in that form it is a new fact in nature. For since its epidemics are, for the most part, not on a large scale in any one place, numbers of them may have passed unobserved during the less advanced times of medical science; and well-marked cases of the disease, viewed disconnectedly, may have been called by the name of some other ailment—"fit," "hydrocephalus," "apoplexy," "nervous fever," "lock jaw," &c. In 1837, when its importance first began to be recognized in France, few previous epidemics of the disease were on record.\* But from 1837 till now, sometimes more in one country, sometimes more in another, the disease has been continually spoken of as manifesting itself in numerous small well-defined epidemic outbreaks. The apparent beginning was at Bayonne in 1837, and within the next 12 years, 47 epidemics had been recorded in 36 of the then 86 Departments of France. The scanty medical literature of South Italy shows that at least during the seven years 1839-45 many epidemics of the disease were occurring there. During the same and some subsequent years, renewed outbreaks of the disease in Algeria were reported. Of Spain it is at least certain that, in 1844, there was a small epidemic at Gibraltar. In Denmark there were epidemics at least in the years 1845-48. In the United States of America two epidemics were observed in 1842, and, from then probably till now, epidemics have constantly been under observation in one part or another of that vast territory. In 1854 Sweden was first reported to be suffering, and within seven years had lost more than 4,000 of its population by the disease. In Norway the disease has been prevailing since 1859. Germany seems almost entirely to have escaped till a very recent period; but of late the disease has been prevailing at least in parts of Prussia, Saxony, and Hanover, and to a small extent has shown itself in Poland. Especially in the eastern parts of Prussia, well-marked epidemics have been recorded; and it was the prevalence of such epidemics about the Lower Vistula, particularly at Dantzic and Elbing, which gave rise to the mistaken popular belief that "plague" had spread thither from St. Petersburg. Dr. Sanderson tells me that the Medical Officer-in-chief of the Circle of Dantzic reports that at least 1,000 persons have died there of the disease since Christmas. Our country meanwhile has been almost entirely without experience of the disease. In 1846, and again in 1850, something of it was indeed seen very partially in Ireland, and in the former year there was a doubtful trace of it in Liverpool.† It is possible too that we may have had small

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\* At Geneva in 1805, it killed 33 persons. In 1806-7 it was seen in the Prussian army. In 1807 it was at Briançon, in 1811 at Dantzic, in 1813 at Brest. In 1813-16 it visited Metz, Pont à Mousson, Sarreguemines and Mainz, as also Grenoble and Paris. In 1822 it was at Vesoul, and in 1823 at Le Mans.—Boudin, op. cit.

† In the "Dublin Quarterly Journal" of 1846, Dr. Robert Mayne published a short Paper on the Irish experience of that year; and in the "Medical Gazette" of 1847, Dr. Whittle noticed the facts which he had observed at Liverpool. The Irish experience of 1850 was written of by Dr. McDowell in the "London Journal of Medicine" of 1851.

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local outbreaks which have been unrecognized or unrecorded. But certainly the disease has not prevailed on a large scale in any part of the United Kingdom, and, practically speaking, is therefore almost unknown to the mass of our medical profession.

Though the causes of the disease are hitherto not exactly known, some broad ætiological generalizations about it have been made. In the first place, the disease, in whatever climate it has prevailed, has shown a very marked preference for the colder seasons of the year. Of 182 epidemics, examined in this point of view by M. Boudin, 10 were in August and September, 24 in October and November, 46 in December and January, 48 in February and March, 30 in April and May, and again 24 in June and July. In the second place, epidemics have seemed particularly apt to occur in establishments where masses of special population have been living in common domicile—as in work-houses, convict prisons, schools, and (above all) barracks. And in several of such cases the epidemic has seemed to confine itself to one section of the establishment—to one block of building, to one floor, or to one room. It is asserted that here, as a general rule, the affected segment of population has been in overcrowded and ill-ventilated quarters. And when the disease has spread from such centres, or has independently arisen among common populations, this, almost always, is said to have been under similar unwholesomeness of circumstances. Where the epidemic has been among soldiers, officers have enjoyed almost entire immunity; and where common populations have been suffering, the disease has shown great, if not exclusive, preference for the worst-lodged classes of the community.\* Reviewing the evidence which exists upon these points, I am strongly of opinion that the best sanitary precaution which in the present state of knowledge can be taken against the disease, must consist in care for the ventilation of dwellings. But, in stating this, I must add that in some cases, according to local reports, the distribution of an epidemic has very decidedly not been governed by conditions of overcrowding and ill-ventilation. And in this connection it is important to recall the fact, that during epidemics of meningitis, and while perhaps the severe cases of the disease are all in their usual close proximity to one another, often there will be (as though from some diffused morbid influence) an extensive distribution of milder cases or threatenings of the disease beyond the area in which the severer phenomena are witnessed.

Of personal predispositions to the disease scarcely anything is known. Both sexes have suffered, though apparently the male far beyond the female. And all ages have suffered, though least of all those which are most advanced. Where an epidemic has occurred among military and convict populations, its victims have of course mostly been in the prime of life; but where among the common civil population, it has often, if not generally, shown itself least sparing of youth and childhood. In the French army, it has been thought particularly to affect recruits. The fact may prove to be unimportant, that in descriptions of the disease, record has very often been made of the patient's vomiting or otherwise discharging ascarides from his intestinal canal;—but obviously the speculation which that fact suggests extends beyond the

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\* Here, however, it is worth noting that such a preference as is described for the poorer classes of the civil population need not be solely contingent on the general crowdedness and non-ventilation of their dwellings; for commonly the worst lodged parts of the population have many other sanitary disadvantages, including the very important one of improper and insufficient nourishment.



question whether the ascarides had any direct relation to the disease, and involves the much larger inquiry whether undiscovered other influences, operating on or through the intestinal surface, may perhaps have been associated with the parasites.

The very important questions remain, whether the disease is communicable from person to person, and, if so, what are the laws of its communicability. From the large experience which has now been collected on the subject, it may, I think, confidently be inferred that the disease, if directly communicable from person to person, is communicable only in a very low degree. Such communicability as is familiar to us with typhus, smallpox, and other eruptive fevers, cerebro-spinal meningitis does most assuredly not possess. To this extent, the tendency of the disease to prevail only in small compact epidemics is in my opinion a conclusive argument. But that the disease is incommunicable cannot, I fear, at present be maintained:—for the French military experience alleges that outbreaks of it in garrisons have sometimes so definitely followed the arrival of infected soldiers from other garrisons that the arrival could not well be acquitted of contagiousness; and unless those observations have been fallacious, it must be deemed a problem of great importance to determine under exactly what conditions and circumstances the sick have thus been enabled to propagate their infection to the healthy. The principles on which such investigations ought to be conducted are now fairly understood by men of science, and it is to be hoped that the problem which I state may soon be solved. Meanwhile, in my opinion the importability of the infection of the disease cannot at the utmost be deemed more than a danger of very subordinate rank. And I think it extremely probable that, if the disease is directly communicable from person to person, or is in any manner diffusible by personal intercourse, its powers of thus spreading itself are only of so low a degree that, with ventilation and cleanliness and good sanitary appliances, they may, for practical purposes, be virtually set at naught.

It is fortunate that cerebro-spinal meningitis does not prevail in very large epidemics. For, to the persons whom it attacks, it is one of the most dangerous of diseases. In thirteen epidemics concerning which M. Boudin gives statistics, there were collectively 809 deaths among 1,304 patients; in some of the worst epidemics the mortality seems to have been as high as 80 per 100; and the disease, as now prevailing in Germany, seems to be showing at least its average, very terrible, fatality. Evidently, then, at present it can be no satisfactory task to speak of the treatment of the disease. So far as results have yet been codified, medicine seems universally to have been powerless against the disease, and perhaps in some cases to have lessened the patient's chances of recovery. The officers who have just reported to the Prussian Government on the epidemics prevailing about Dantzic advert (like many preceding writers) to the "sudden collapse which often baffles all remedies." And evidently a disease which tends to that issue will not admit that generally depressing treatment be used against it, except (if at all) with the very utmost circumspection. It is on record that one French practitioner who tried bleeding for the disease, lost 30 of his first 31 cases, while a second, using similar treatment, lost 21 out of 22; and though other practitioners have alleged that in their hands this treatment has been of good effect, certainly it could not be admissible, except under very close and careful qualifications with regard to the circumstances of its employment. Mercury has been freely tried, and seems to have been at least useless. Opium has been strongly recommended by some French practitioners, and perhaps under some circumstances has

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been of advantage. In various processes of disease which resemble meningitis in their nature, the local application of cold, judiciously and skilfully made, has given to modern medicine some very notable successes; and to it, more than to any known resource of the art, I should myself have been disposed to look hopefully in the present instance. Ten years ago, indeed, it was the report of an eminent German writer\* that, in epidemic meningitis, that most effective of antiphlogistics could not commonly be borne by the patient. But, more recently, improved means have been found for the medical utilization of cold.† And Dr. Thudichum (who has seen something of meningitis on the Continent, and has favoured me with a memorandum on the recent epidemics in Bromberg and Ottmachau) tells me that present experience in Germany is in favour of this principle of treatment.

Concerning whatever progress is to be made in the treatment of the disease, as well as concerning whatever is to be learnt of its causes, I shall continue to look anxiously to the countries where epidemics are now prevailing. As there is no country in the world where the medical sciences are better cultivated than in Germany, so it may reasonably be hoped that, during the visitation which that country is now suffering, important light may be thrown on the causes, prevention, and treatment of a disease which hitherto is most imperfectly understood. It may also be hoped that the course which the Lords of the Council have taken, in directing observations to be made of the present foreign epidemics, will ensure for this country an immediate participation in whatever useful knowledge our German contemporaries may acquire.

April 19, 1865.

(Signed) JOHN SIMON.

## No. 10.

*On Fevers at  
St. Petersburg,  
by Dr. Whitley.*

No. 10.—REPORT (May 10th 1865) by Dr. GEORGE WHITLEY on the FEVERS prevailing epidemically at ST. PETERSBURG in the winter 1864-5.

In the early part of the month of April last, I received instructions from the Medical Officer of the Privy Council to proceed forthwith to St. Petersburg, for the purpose of ascertaining for the information of the Lords of the Council the nature of the fever or fevers then epidemically prevailing there. I was especially directed to learn whether any fever then existing in St. Petersburg was of a kind not habitual to the United Kingdom, or (if not different in kind) was modified in any important particular from forms with which English practitioners are familiar.

Pursuant to these instructions, I arrived at St. Petersburg on the 15th of last month, when Her Majesty's Ambassador had the goodness to put me into communication with the Ministers for Home and Foreign Affairs, and with the various medical authorities, civil and military, from all of whom I received every facility for the prosecution of my inquiry.

With such assistance, I was soon enabled to ascertain that no form of fever, or other disease unfamiliar to English practitioners, had prevailed in St. Petersburg. Continued fever, typhoid or typhus,

\* Hasse, in Virchow's "Handbuch der Pathologie und Therapie," vol. i, part 1. p. 461.

† Professor Esmarch's paper on the Use of Cold in Surgery (translated in 1861 for the New Sydenham Society) marks, in my opinion, an epoch in the matter to which I refer. His method of refrigeration is to use india-rubber bags made of any required shape, and filled with ice, snow, or some freezing mixture.

commonly prevails somewhat extensively there, but in August last, cases of a form of fever unknown to the practitioners of that city, began to present themselves, which, however, Dr. F. Hermann, chief physician of the Aboukhow Hospital, soon ascertained and declared to be the relapsing or famine fever so well described by Scotch and Irish authors, and others. The further course of the epidemic, and concurrent testimony of other physicians, having fully confirmed the accuracy of this view, it appears unnecessary to enter into any details here as to the nature of the disease.

Before proceeding to give an account of the severity of the epidemic, a few words concerning the sanitary state of St. Petersburg generally, and especially since the autumn of last year, may be of use. This city with its swampy foundation and copious rainfall, surrounded on all sides by water, and exposed to extreme changes of temperature, affords, even in the best years, a very unhealthy sojourn for the poorer inhabitants. The population, which amounts to about half a million, is distributed over a large area; but, notwithstanding this, much overcrowding takes place amongst the poor, and since the autumn of last year an unusual number of labourers have flocked to St. Petersburg without a corresponding increase of house accommodation. Thus, when I called the attention of the Minister of the Interior to a statement in English journals that 43,000 more labourers than usual were living in the city this winter, he merely remarked that he believed that the figures were not *quite* correct. One case was mentioned to me in which 60 men were found lying closely packed on the floor of one room wrapt in their sheepskins, with door and windows closed to keep out the cold. The atmosphere of this room was stated to be so charged with carbonic acid that a candle would scarcely burn in it.

The following official return from the various hospitals of St. Petersburg gives an approximate view of the severity of the present epidemic, though, doubtless, many cases have occurred which are not included in this return, not only at a dispensary which I visited, but amongst the poor at their own homes.

NUMBER of PERSONS admitted into the CIVIL and MILITARY HOSPITALS of ST. PETERSBURG from the Commencement of the present Epidemic to March 1st, 1865.

Hospitals.	Admitted.		Died.	
	Typhus.	Relapsing Fever.	Typhus.	Relapsing Fever.
Aboukhow - - -	1,315	2,312	306	390
Maria - - -	1,521	736	169	47
St. Peter and Paul - - -	558	540	51	7
Mary Magdalen - - -	453	734	92	40
Alexander - - -	1,699	821	350	101
Kalinkine - - -	100	10	20	2
Izmailow, temporary - - -	209	1,865	47	189
First Military - - -	876	307	106	41
Second Military - - -	173	116	26	9
Kalinkine, Naval - - -	92	9	11	4
Préobajensky - - -	46	66	4	2
Moscow - - -	30	94	8	4
Grenadier - - -	25	15	8	—
	7,097	7,625	1,198	836
Total - - -	14,722		2,034	

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 by Dr. Whitley.*

The epidemic reached its height in the months of January and February last, when the admissions into the civil and military hospitals, for all diseases, sometimes amounted to 300 a day, while the mortality in February 1865 was double that of February 1864.

In addition to the unhealthy state of the dwellings of the poor mentioned above as constant for St. Petersburg, and the unusual crowding during the present winter, the chief food of the lower classes, bread, cabbage, and fish, were scarce and inferior in quality, and vegetables in general much destroyed by early frost. Further, an almost tropical heat in June and the beginning of July was succeeded by a cold damp autumn and an early, unusually severe winter. If we bear in mind also that the water supply is taken from the river Neva, and often much polluted by surface drainage, and that large quantities of very inferior spirits are consumed by the poorer inhabitants, it will at once be understood that an epidemic of relapsing fever, once introduced amongst such a population, might well assume proportions even more formidable than the present one.

One set-off against the unsanitary conditions mentioned above may be of interest, viz., that even the poorest inhabitants of St. Petersburg take a steam bath at least once a week, generally on Saturdays, and I was able personally to convince myself at the dispensary that, although their clothing is often very dirty, their skin is cleaner than is usual amongst a similar class elsewhere.

The relapsing fever of the past winter in St. Petersburg offers few features worthy of special mention in reference to its rise and progress, its causes, its extent and fatality, its prevention or its treatment, resembling very nearly in these respects epidemics described as occurring elsewhere. It was impossible at the time of my visit to obtain an exact account of the proportion of cases in which glandular swellings, so-called buboes, occurred; but I ascertained that parotitis was rather common, often double, while any affection of the inguinal glands was much less frequent. Cases with these complications very commonly proved fatal.

The treatment was chiefly expectant, and it did not appear that the use of quinine or any other medicine could check the relapses or modify the general course of the disease.

The post-mortem appearances, also, with one exception, resemble so closely those described elsewhere as to render any lengthened notice of them unnecessary. The spleen was the organ most constantly affected to any considerable extent, the liver less frequently, while the kidneys were often but slightly congested. The exception alluded to was furnished me by Dr. Kremiansky, of the 1st Military Hospital, who states that of 720 autopsies made by him from the beginning of September 1864 to the middle of March 1865, 49 presented well-marked hemorrhagic inflammation of the dura mater. The paper he kindly sent me just as I was leaving St. Petersburg is a preliminary one only, and does not state how many of these persons died from fever, but the general table given above refers to about the same period. A similar post-mortem phenomenon does not appear to have been observed to any great extent at other hospitals; but the observations of Dr. Kremiansky are of interest in connexion with the epidemic cerebro-spinal meningitis prevalent in Prussia.

Although the St. Petersburg epidemic of the past winter adds but little to our previous knowledge of relapsing fever, it affords a good illustration of the manner in which the disease is modified by the circumstances under which a population lives. The general table furnished by the various hospitals presents some striking differences in reference to the mortality in them, of which, had time permitted, I



should have been anxious to seek for some satisfactory explanation; but I have reason to hope that a young English physician, resident in St. Petersburg, will, ere long, publish a detailed account of the whole epidemic. Most probably, however, the low rates of mortality would be found dependant upon a better previous position in life and more favourable conditions in reference to ventilation, &c., in the respective hospitals.

The class of persons amongst whom the epidemic prevailed only a little less extensively than amongst the poor labouring Russian population were the military; but even here the better food and more healthy dwellings were generally accepted as sufficient to explain the comparatively low rate of mortality.

Amongst the English and German workpeople and their families, amounting in number to several thousands, the epidemic has prevailed to a very slight extent only, with a low rate of mortality; while the upper classes have remained almost entirely exempt from that particular form of disease, thus furnishing one more striking instance of the connexion between relapsing fever and destitution, with its concomitant evils.

APPENDIX.

No. 10.

*On exFers at  
St. Petersburg,  
by Dr. Whitley.*

No. 11.—REPORT (May 26th 1865) by Dr. JOHN BURDON SANDERSON on the EPIDEMICS of CEREBRO-SPINAL MENINGITIS prevailing about the LOWER VISTULA in the beginning of 1865.

No. 11.

*On  
Cerebro-Spinal  
Meningitis  
about the Lower  
Vistula, by  
Dr. Sanderson.*

On the 7th of April I was instructed by the medical officer of the Privy Council to proceed without delay to Dantzie for the purpose of obtaining information for the Lords of the Council as to the nature, causes, prevention, and treatment of the disease reported to be prevailing epidemically in that town and in other places in the valley of the Vistula, and to report on the rise, progress, and extent of the epidemic.

I accordingly left London on the morning of the 8th, and arrived in Berlin on the 9th. Having on the following day had the honour of an interview with his Excellency Herr von Mühler, Minister of Public Instruction, and having also conferred with Professor Hirsch, who had completed a similar investigation, undertaken by order of the Prussian Government, I proceeded on my journey, and reached Dantzie on the morning of the 11th of April. I at once placed myself in communication with H.B.M. Consul, W. A. White, Esq., with whom I waited upon the Prefect of the Department, and the General in command of the garrison. By the Prefect I was introduced to the Superior Medical Officer of the Department, Medicinal-und Regierungs-Rath, Dr. Keber, who received me with the utmost courtesy, and afforded me every possible facility in the prosecution of my inquiry. By this gentleman I was introduced to Oberstabsarzt Dr. Kuhn, physician in charge of the hospital of the garrison, to Oberstabsarzt Dr. Häser, physician to the town infirmary; to Sanitäts-Rath Dr. Hildebrandt, physician to the Marien Hospital; and to Dr. Abegg, physician to the Protestant Deaconesses Hospital, through whose kindness I had the opportunity of observing such cases of cerebro-spinal meningitis as occurred among the patients under their care during my stay in Dantzie.

I subsequently visited those places in the valley of the Vistula, and in the adjoining rural districts, in which cases of meningitis were reported to exist.

## APPENDIX.

## A.—DESCRIPTION OF THE DISTRICT IN WHICH THE EPIDEMIC PREVAILED.

No. 11.

On  
Cerebro-Spinal  
Meningitis  
about the Lower  
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Dr. Sanderson.

## 1. Geography.

The epidemic of cerebro-spinal meningitis was almost entirely confined to the country comprised within the Department of Dantzic (province of West Prussia) which lies between long. 18° 0' and 19° 35'.\* The Department is divided into seven Districts or Circles, viz., Berendt (population, 40,863; area, 459.0 square miles); Carthaus (population, 54,109; area, 521.4 square miles); Dantzic (population within the walls 85,327, including 7,196 military, without the walls, 72,608; area of the whole district, 467.8 square miles); Elbing (population, 64,281; area, 258.2 square miles); Marienburgh (population, 58,048; area, 302.6 square miles); Neustadt (population, 58,297; area, 526.6 square miles); Stargardt (population, 64,169; area, 510.0 square miles).

The Department is intersected by the two great branches into which the Vistula proper divides close to its southern boundary. The eastern branch is called the Nogath, and joins the Frische Haff near Elbing, while the western retains the name of Vistula, and again divides near the sea into two branches, one of which flows into the Frische Haff, the other into the Baltic. Between these two branches and the Frische Haff on the south and the sea on the north lies an insulated strip of land called the Nehrung.

The Höhe.

The aspect of the country is very varied. The western portion of the department is hilly, in some places almost mountainous, and is called the Höhe. This district extends from the eastern boundary of Pomerania to the valley of the Vistula, and comprises the Circles of Neustadt, Carthaus, Berendt, and parts of the Circles of Stargardt and Dantzic. The ranges of hills are in some parts parallel to each other, but in others they diverge in such a manner as to form an irregular network, and to give to the whole country an undulated character. The intervening valleys are so shallow and wide that they might almost as correctly be described as table-lands, their elevation being very little less than that of the summits which surround them. The highest point is the Thurmburg (1,022 feet above the sea), near the town of Schönberg. The whole of the hill district is scattered over with erratic blocks of granite, which are met with in such numbers that they are everywhere used for making roads and for building. Extensive peat bogs are met with in every direction, which occupy the troughs of the valleys. There are besides innumerable lakes and morasses, into some of which considerable streams discharge themselves. The three largest of these lakes have a collective area of about 25 English square miles. Great part of the district is clothed with forests of Scotch fir, but there is very little underwood.

The subsoil is diluvial, consisting either of sand and gravel, covered with loam, or of pure sand. When the latter is the case, as in the Circles of Berendt and Stargardt, the soil is sterile, whereas those parts of the hill district which are loamy (as, e.g., the neighbourhood of Dantzic and Dirschau) are in the highest degree fertile.

Werder and  
Nehrung.

The level tracts of country which comprise the delta of the Vistula, and the alluvial lands on either side, are called Werder and Nehrung, and have together an extent of 500 square miles. The Nehrung, as

\* Since the above was written I have learnt that between the 11th and 31st of March about 20 cases of cerebro-spinal meningitis occurred at Graudenz, a small town situated near the Vistula, about 70 English miles above Dantzic. It is believed that there were a few cases in the surrounding villages.

already stated, is an insulated strip of land between the Vistula and the sea. It is exceedingly fertile, its soil consisting of alluvial mould to a depth of five feet. Under this is a bed of pervious gravel, by which natural drainage is promoted. Those parts of the Werder (under which term is comprised the whole of the alluvial lands, excepting the Nehrung) which are nearest the Vistula and Nogath lie below the mean level of the water, for which reason they are protected by weirs which extend along the stream on either side. These low-lying lands which are called collectively the Niederung, are necessarily drained by mechanical means. In some parts, where the protection afforded by the weirs is insufficient, they are liable to be inundated every spring when the ice breaks up on the upper part of the river, and the snows melt on the Carpathian mountains. Towards the sea the Nehrung is flanked by a range of low sand-hills (*Dünen*) planted with fir-trees.

Throughout the whole of the country above described the conditions of soil favourable to the development of malaria are present. In the Niederung these conditions exist in the greatest intensity. For the purpose of freeing the land from the rain and snow water, with which it is inundated every spring, canals are constructed at different levels, with which the country is intersected in all directions. To lift the water from the lower to the higher levels, machinery worked by wind or steam is employed. As, however, these canals are in use only during the spring months, the stagnant water which they contain becomes during the summer covered with algæ and other water plants, and eventually evaporates in autumn, leaving behind it a mass of half putrid vegetable débris. Throughout the whole of this district cases of ague are frequent. I am informed by Dr. Scheel (who resides at Gross Zünder in the Niederung), that in the fall of the year, to be for a few hours on the banks of one of these canals is sufficient to ensure an attack; a result which is frequently observed in persons who have reclined at the waterside to sleep off the effects of over indulgence in the common drink of the country—*schnapps*. The cases occasionally exhibit the characters of pernicious intermittent, and terminate fatally within a week, being complicated with excessive congestion of the liver and spleen, pyæmia, and secondary inflammation of the lungs, kidneys, and other organs. In general, however, the cases are mild, although varying much in their duration and symptoms.

Although in the hilly district fatal cases are not met with, true agues and other intermittent forms of disease occur in great frequency. The conditions of soil in this district, although not so unfavourable as in the Niederung, are yet decidedly malarious, for everywhere the atmosphere is impregnated during the dry months of the year with the effluvia arising from the gradual desiccation of the extensive marshlands which occupy the valleys and elevated plateaux and surround the numerous lakes and ponds.

## 2. Dwellings.

As no good building-stone is to be had in the country, most of the cottages are constructed either of wood alone, or of wood and slime. The worst specimens were met with in the fishing hamlet of Bodenwinkel in the Nehrung, and in the circles of Berendt and Stargardt. At Bodenwinkel the cottages usually cover an area of about 1,000 square feet, and are divided into four rooms on the same level, each of which is occupied by one family. The whole is covered with a gable roof and thatched with straw. The rooms are always ceiled, and are floored with thick boards, which are laid on the bare ground. As they

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are not more than seven feet high, the capacity available for each family is about 1,300 cubic feet. They are warmed by large stoves constructed either of glazed earthenware tiles or of brickwork, and furnished with *Kacheln* for cooking. A single casement window (of about nine square feet area) affords the only means of ventilation. There is no provision either for drainage or the deposit or removal of refuse, whence it results that the ground surrounding the cottages is everywhere polluted with deposits of ordure and foulness of every description.

The above may be taken as a sample of the habitations of the very poorest of the peasants in the low-lying districts. The cottages of those who are better off are more spacious, but in other respects they are of similar construction, with the exception that they often contain one or two rooms only. Many cottages were occupied by single families, but it was never found, even where there were two rooms, that more than one was used either as a sleeping place or for other domestic purposes. Both in town and country the houses inhabited by the better classes are spacious and well built.

Number of in-  
habitants in  
each house.

According to statistical results of the census of 1861, each family includes five persons (this relation holding good both in the town and country). In the rural villages the average number of inhabitants to each house is exactly 10, so that there are two families in each. In Dantzic, where many of the houses are very spacious, there are 18 inhabitants to each house. In the Werder and Nehrung most of the cottages are scattered over the country at such distances from each other that the divisions between adjoining parishes are entirely arbitrary, but in the Höhe they are for the most part collected in compactly built villages, at a distance of several English miles from each other.

Density of the  
population.

In the Werder there were in 1861, 0·026 inhabitants per acre, in the Höhe 0·013.

## 3. Climate.

The climate of the neighbourhood of Dantzic differs from that of London in being less equable. The following table exhibits the mean temperature observed at Greenwich, at Dantzic, and at Schönberg, a small town in the very centre of the principal epidemic area, situated in the most elevated part of the hill district, at a height of 700 feet above the level of the sea.

	Winter.	Spring.	Summer.	Autumn.	Year.
Greenwich (1841-63)	39·7	- 52·8	- 59·9	- 45·0	- 49·3
Dantzic (1848-59)	33·7	- 43·7	- 63·1	- 47·4	- 46·08
Schönberg (1848-59)	26·26	- 39·9	- 59·6	- 43·6	- 42·34

Thus it appears that Schönberg is exposed to an exceedingly severe winter temperature. It is stated that in the hill district the frost of winter lasts from the middle of November to the end of March, whereas near the sea it continues only for the first two months of the year.

## 4. Wages and Subsistence.

As regards wages and means of subsistence there is a remarkable difference between the condition of the agricultural population of the valley of the Vistula and that of the hill districts of Carthaus and Berendt.

In the Werder an ordinary farm-servant receives threepence a day in addition to his board and lodging. His board consists of meat three times a week (11½ oz. each time), and bacon daily (3·65 oz.), with

oatmeal porridge, barley and rye bread *ad libitum*. In the hill country the daily wages of a farm servant never exceed twopence halfpenny, and his diet is more restricted. He has meat only twice a week, and two pounds of rye bread daily, to which is added potatoes *ad libitum*, with sour milk, herring, or pease soup. The estimated cost *per diem* of a diet of this description is ninepence.

The condition of the day-labourers (who constitute 31 per cent. of the agricultural population) is much inferior to that of the farm-servants. Labourers of this description earn from one shilling to one and sixpence per day in the summer, and not more than sixpence in winter, so that their total earnings are not more than sufficient for the purchase of a diet of the very moderate character above described.

The amount of pauperism appears to be much greater than in this country. In the rural districts 83·6 families in every thousand are in the receipt of relief, of which 48 per cent. are entirely supported at the public expense.\*

### 5. Drinking Water.

Throughout the whole district drinking water is abundant, but its quality is open to objection. Almost all of the farms and villages are provided with wells sunk to a depth of about 10 feet below the surface. In the Niederung the water thus obtained, although limpid and transparent, is of a pale amber colour, resembling that of hock. This colour it derives from the peaty subsoil in which the wells are sunk. In those villages which adjoin the Vistula, I found that the water of the river was preferred by the peasants, although at the time of my visit it was extremely turbid. In the hill country the water of the wells is probably of better quality, but there is no doubt that in many places water of alluvial origin is used for domestic purposes.

The town of Dantzie derives its water supply from a small river called the Radaune. It is taken from the stream at a point about a mile above the town, and is distributed by wooden conduits (such as were formerly in use in many country towns in England). These are laid under the streets at a level of several feet below the surface. As the Radaune takes its origin from one of the lakes in the Circle of Carthaus, its water is alluvial. It is much complained of by the inhabitants, who are now agitating for a better supply.

### B.—ORIGIN AND PROGRESS OF THE EPIDEMIC.

In the beginning of February 1864 cerebro-spinal meningitis broke out in the town and immediate neighbourhood of Bromberg, a place of 30,000 inhabitants, and distant 100 miles from Dantzie. The disease prevailed epidemically until the middle of June, when it entirely disappeared. During this period about 140 persons (of whom 132 were children under 14) are known to have been attacked, and it is conjectured that about 50 died.† In the month of December, it is reported by Dr. Wolff,‡ that six cases occurred at Czikezyn, in the district of Conitz, Department of Marien-Werder, which adjoins the district of Berendt on the west side. Of these, four ended fatally after from 24 hours' to four days' illness. Three of those attacked lived under the

Outbreak of  
cerebro-spinal  
meningitis at  
Bromberg.

\* In England in ordinary years about 45 persons per thousand of the population receive parochial relief, of whom about 16 per cent. are entirely supported at the public expense.

† "Berliner Klinische Wochenschrift," 1864, p. 328.

‡ Communicated by Med. Rath Dr. Keber.

## APPENDIX.

No. II.

On

*Cerebro-Spinal  
Meningitis  
about the Lower  
Vistula, by  
Dr. Sanderson.*

Origin of the  
epidemic in the  
Department of  
Dantzie.

same root. It is surmised by Dr. Keber that during the intervening period sporadic cases may have occurred between Bromberg and Dantzie, but none such have been heard of.

For a variety of reasons it is difficult to determine with precision at what time and place the epidemic in the Department of Dantzie originated. This uncertainty arises mainly from the fact that in the neighbourhood in which the disease first appeared, the peasantry are mostly Poles, and very poor, and that at first the sufferers were allowed to die in great numbers without having received medical advice. Although there exists in Prussia a provision for gratuitous attendance on the poor, the privilege is restricted within much narrower limits than in this country, whence it results that when children only are concerned, medical assistance is often not called in unless the parents are able to pay for it without difficulty. Thus it happened that a great many children died without attendance, either because the doctor was not called in at all, or was summoned so late that before he arrived the patient was dead. In all these cases the cause of death was entered in the church book as "undetermined."\* It is further to be remembered that the practitioners were at first entirely unacquainted with the characters of the disease, so that although subsequently even the premonitory symptoms became familiar, at its outbreak it was not recognized even in its advanced stage.

Berendt.

It appears that the attention of the government of the Department of Dantzie was first directed to the existence of the epidemic on the 21st of February 1865, by the parish minister of Schönberg, a place about 30 miles south-west of Dantzie, in the hill country. This gentleman had observed that 18 children under 12 years had died between the beginning of the year and the date of his communication. An official inquiry was consequently set on foot by the prefect, in the course of which it was established that the epidemic had existed in the district of Berendt since the new year. It was ascertained that at Neu Barkoczyn a fatal case occurred as early as January 2nd, but it was not established with any certainty that there were no other cases previously. It is indeed the opinion of Dr. Keber that the disease was at that time already prevailing epidemically in the village of Kornen, and he has information that there was at least one case a few days before in the village of Gross Klintsch. It is at all events certain that the disease was first recognized in the neighbourhood of Berendt during the early days of 1865.

The following table† exhibits the numbers of deaths that occurred in each parish of the district during 11 weeks. It shows that 347 persons died during that period, of whom 318 were children under 14 years old, so that the mortality during the period in question amounted to 8·49 per thousand of the population.

\* There is no registration of deaths in Prussia.

† Compiled from the Report of Landrath Engler to the Government of the Department of Dantzie, March 25th, 1865.



TABLE showing the Number and Dates of Deaths from CEREBRO-SPINAL MENINGITIS in the Circle of BERENDT, and the Ages of the dying, between January 2nd and March 21st, 1865.

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PARISH.	Number of Deaths.			Date of Death.		
	Children under 14 years of age.	Above 14.	Total.	First Case.	Last Case.	
	M.	F.				
Wyschyn	2	4	—	6	Feb. 11	Mar. 20
Berendt	51	38	5	94	Jan. 9	" 21
Zblewo	2	—	—	2	Mar. 5	" 8
Niedamowo	1	4	—	5	Feb. 23	" 10
Garczau	1	2	—	3	" 19	" 17
Alt Grabau	5	6	—	11	" 12	" 17
Garczin	3	2	4	9	" 5	" 5
Lippusch	30	26	2	58	Jan. 14	" 15
Pogutken	1	—	—	1	" 14	—
Schöneck	11	1	—	22	Feb. 13	Mar. 16
Alt Kyschau	17	8	3	48	Jan. 12	" 15
Neu Barkoczin	11	6	—	27	" 2	" 11
Sommin	1	2	—	3	Feb. 26	" 9
Schönberg	7	6	—	13	Jan. 18	" 14
Mariensee	11	5	2	18	" 16	" 14
Neu Paleschken	10	4	1	15	Mar. 7	" 15
Other Parishes	—	—	—	12	—	—
Total	164	154	17	347	—	—

The above table shows that, as far as may be judged from the dates of deaths, the disease broke out in the three parishes of the Berendt district, in which it was eventually most destructive, during the second week of January, the first death being recorded at Berendt on the 9th, at Alt Kyschau on the 12th, and at Lippusch on the 14th of January. The two last-named parishes are severally at a distance of 12 and  $7\frac{1}{2}$  English miles from Berendt in opposite directions. Probably about a week later, fatal cases began to occur in Schönberg,\* the parish in which it first attracted the attention of Government. Before the end of January deaths were reported in several adjoining villages.

For some time the disease did not extend beyond the immediate Carthaus, neighbourhood, but about the middle of February it appeared in other parts of the Circle of Carthaus as well as in Carthaus itself. Dr. Marcuse, of that place, who is strongly disposed to attribute its spread to contagion, was unable to ascertain that there had been any intercourse between the places first invaded and the districts already infected, and it is remarkable that, with the exception of Carthaus, there was no epidemic prevalence of the disease in those villages which are situated on the high road from Dantzie into Pomerania, and consequently have frequent intercourse with each other, although sporadic cases were met with.

In Carthaus and the neighbourhood the epidemic appears to have attained its height in the beginning of March. At the time of my visit to Dantzie, April 11th, it was reported, that on the 26th of the

\* Schönberg is situated in the Circle of Carthaus, at no great distance from its southern boundary, by which it adjoins the Circle of Berendt. It is one of the most elevated places in the district, being at a height of about 700 feet above the level of the sea. In its immediate vicinity is the Thurnberg mountain already referred to.

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Extramural  
district of  
Dantzić.

previous month the epidemic was rapidly subsiding, although there were still cases. Up to that date, 311 fatal cases had occurred within the Carthaus Circle, in all of which the nature of the disease was verified by competent persons. In Dr. Keber's opinion the numbers really exceeded 400.

In the extramural district of Dantzić meningitis appeared only a few days later than in the circle of Berendt. In those villages in which it prevailed it manifested as destructive a character as elsewhere, but its area of prevalence was restricted within narrower limits; it was confined to the Nehrung and that part of the Niederung which adjoins the Vistula, appearing on either side of the Dantzić arm of the river at the same time. The village of Gotteswalde was first invaded; about 10 persons were attacked during the first two weeks of January, of whom four children and one adult died. It was not until the middle of February that cases began to occur in Schmeerblock and Schönrohr, two adjoining parishes, the houses of which are scattered in an irregular manner over a considerable tract of marsh-land on the left bank of the Vistula. Up to the time of my visit there had been about 20 cases in these parishes, about half of which had been fatal. In Gross Zünder two cases occurred early in March, one of which was rapidly fatal, after which no one was attacked until April 10th, when four farm labourers took ill within a few days of each other, one of whom died. Of these patients it appeared that two were employed in the same farm, but did not sleep in the same bed; the other two resided in different farms. In other adjoining parishes there were only sporadic cases. In the Nehrung the first case that came under observation was at Fischerbabke, on the 17th of January, but it is believed that a case had already occurred at Junkertreil. Subsequently the disease appeared simultaneously at the neighbouring villages of Stuthof, Bodenwinkel, and Steegen, the first case (which was fatal) being that of a child of the resident medical practitioner, who took ill on the 10th of February. In all not more than 20 cases had occurred in the three villages. After this there were a few cases in the scattered farm-houses on the flats (so-called Cämpen) which lie between Stuthof and the Vistula. At the time of my visit (April 18th) fresh cases were reported at Junkeracker, Kronenhof, Schiefenhorst, Freienhuben, Schönbaum, and Letzkauer Weide, all of which are scattered villages lying between the bifurcation of the Vistula and the Baltic.

Town of  
Dantzić.

In Dantzić a case came under the care of Dr. Lissauer on February 10th, the child having been ill for seven days previously; but about the same time (Feb. 5th) another child took ill in an opposite quarter of the town. It was not until March that the disease assumed a formidable character. During the month of February the deaths from acute diseases of the brain numbered 24, whereas the mean mortality from the same causes in the corresponding months of 1863 and 1864 was 12.5, so that the mortality from the epidemic must have been trifling. In the civil hospitals of the town, which at the time of my visit accommodated 320 patients, only 18 cases of cerebro-spinal meningitis had been received (including some of very slight character), of which four had terminated fatally.\* It may be conjectured, that about 30 persons had died in the town. The patients who came under my observation in the hospitals, and elsewhere, resided in various parts of the town, within the walls as well as in the suburbs.

Elbing.

In the Circle of Elbing the epidemic appeared on the 19th of February at Jungpfer and Keitelau, two villages situated on opposite sides

\* Since my return two others of the patients above enumerated have died.

of a narrow creek, which communicates with the Frische Haff, about five miles north-west of Elbing. In Jungpfer 14 persons died between that date and the end of March, of whom two only were adults. In Keitelau there were in all five cases, three of which were of adults, who died, and two of children, who recovered. With these exceptions, it was reported that the Elbing district was not invaded.

In the Circle of Stargardt cases were reported about the end of February in eight villages, most of which were situated in that part of the Circle which adjoins Berendt. In Suhanitzka there were three deaths, one of which was of an adult; two other children were attacked, and recovered. At Lienfitz there had been four cases; in Garczau, nine cases. In the town of Stargardt there had been 27 cases, and 16 deaths. Of these 21 were in different households, the remaining six being divided equally between three families. Of 24 patients, whose ages were known, eight were under one year, nine under six years, three from six to 14, and four above 16 years of age.

In the Circle of Neustadt no cases had been reported, excepting in Neustadt. the village of Pogorz, where two children had died.

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Stargardt.

## C.—DESCRIPTION OF THE DISEASE.

1. *Summary.*

In adults the disease begins almost invariably with shivering, profuse vomiting, intolerable headache, and giddiness. After these symptoms have continued for several hours the patient's thoughts become confused. The headache continues, while other pains fix themselves in the muscles of the nape of the neck, of the small of the back, or of the abdominal wall. At this part of its progress the malady advances so rapidly that within a few hours after the appearance of the first symptoms the patient becomes violently delirious, while at the same time the head is thrown back, and the thighs are drawn up by muscular contraction. The delirium usually lasts for a few days only. In the worst cases the patient lapses into profound insensibility, which continues until death. In a few rare instances he regains complete consciousness as the delirium ceases, and enters on convalescence. Much more frequently he is left on the third or fourth day of the disease, if he survive its first onset, in a state of extreme nervous depression, which is usually of long duration. This condition is characterized by impairment of consciousness, rather apparent than real, perversion both of common and special sensibility, marasmus, and excessive muscular weakness.

During the continuance of the state of depression the patient is liable to frequent recurrence of the initial symptoms. Although so profoundly prostrate and indifferent to external impressions that he is incapable of replying to questions, he frequently utters piteous cries of pain. At night he sleeps little, usually wanders quietly, and is often subject to hallucinations. At any moment his life may be imperilled, either by secondary affections of the lungs or other vital organs, or by a recrudescence of the primary disease.

As complete consciousness returns, and the patient resumes his relations with the external world, he may either find that in the course of the malady he has become paralysed, or that his sight or hearing are destroyed, or, on the other hand, he may be so exquisitely sensitive that light and sound are intolerable, and all other external impressions painful. Even if he escapes these consequences, he is left in a pitiable state of muscular weakness and exhaustion, from which he very slowly recovers.



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The above description is completely applicable to those cases only in which the tendency to an early fatal termination manifests itself in the violence of the symptoms of invasion. Other cases are met with in which, although the evidences of cerebral disturbance are, from first to last, confined to sleeplessness and night-wandering, the subsequent development of the disease is similar. In these cases, the dangers and liabilities to which the patient is exposed are as serious, and the progress as tedious and exhausting as in the others.

2. *Premonitory Symptoms.*

In all of the cases observed, excepting two, the onset of the disease was sudden, the patient having been in good health up to the moment that he was seized. In one of the exceptional cases the patient had complained of headache and nausea for some days previously. In the other there had been three febrile accessions of so marked a character as to give rise to the suspicion that she was suffering from intermittent fever.

It usually happened that the patient was suddenly seized while following his ordinary occupations, or at play, with shivering, vomiting, and headache. Of these symptoms the first mentioned commonly preceded the others, but in many instances it was not possible to determine in what order they presented themselves. Exceptional cases were met with in which the patient had no shivering either at the onset or subsequently, but in general this phenomenon existed in a very marked degree.

3. *Symptoms of Invasion.*

Vomiting.

The occurrence of obstinate vomiting was almost universal. Of 56 cases in my notes in which this symptom was referred to, it was ascertained to have occurred in 51. In the remaining five it was ascertained (by inquiry from parents or attendants) not to have existed, although (in one instance) there was retching and nausea. The vomiting was of the most aggravated and uncontrollable character, the vomited matter consisting at first of half-digested food, subsequently of mucus stained with bile. In adults it recurred at short intervals for several hours, ceasing when the patient lost consciousness; in children its continuance was less definitely limited. Of the five cases, in which there was no vomiting, three, although they terminated favourably, were severe, the other two were slight.

Headache.

The occurrence of severe headache at the onset would appear to have been almost as constant as that of vomiting. Out of 44 cases it was present in 36. The cases in which it was not recorded were of two kinds. In some of them (see, for example, cases 2 and 4), all of which were of adults, delirium supervened so rapidly that the headache may well be supposed to have escaped notice, while in others the patients were so young that the fact that no indication of pain in the head was observed by the parents could not be regarded as sufficient ground for assuming that it was not experienced. In general the headache of invasion did not appear to be confined to any particular part of the head, in which respect it differed from the pain subsequently complained of, which was always referred to the occiput.

4. *Delirium.*

The period of invasion terminates in perversion, impairment, or loss of consciousness. The patient may either become suddenly delirious, or the initial symptoms may gradually subside, and leave the state of depression already described. Of the cases I had the opportunity of

observing there were 12 in which the headache and vomiting of the first few hours ushered in a delirium of so violent a character that it was necessary to secure the patient to his bed. Of these cases three were fatal. In the very rapid case of the soldier Dupré (case 4) the delirium recurred without abatement for three nights (the patient being somewhat quieter during the day), after which he lay absolutely insensible for the remaining 48 hours of his life. The labourer Rahmell (case 2) was also violently delirious for two nights, after which he became insensible and died in a like manner on the fifth day. In the child Bremer (æt. 4) the disease followed the same course much more rapidly. He took ill in the afternoon, was delirious all night, became comatose in the morning, and died on the day following.\* Still more rapid was the history of another child æt. 7, who was at play at five in the afternoon, began to vomit at six, became delirious at 10, and died comatose at half past two a.m. In these cases the delirium ceased only to make way for death itself, the coma which supervened being but the commencement of dissolution.

In the cases which terminated favourably, the delirium was of comparatively short duration. In five cases it was confined to the first night, but in two others it lasted longer. One of these patients, a child æt. 9, seen at Gotteswalde with Dr. Scheel, was delirious for three days, suffering at the same time from the usual muscular pains in the nape of the neck and the abdominal walls. To relieve these pains, and to calm the delirium, morphia was given in considerable doses, while, at the same time, leeches were applied to the spine. The patient became tranquil, gradually regained consciousness, and entered on a tedious convalescence, complicated with deafness. In the other case, seen at Dantzic with Dr. Lissauer, the history was similar, but the delirium would appear to have lasted somewhat longer.

Those more numerous cases in which the delirium, if present, was not such as to render restraint necessary, varied considerably as regards the degree in which consciousness appeared to be impaired or subverted. With the exception of those who were moribund, none of the patients were absolutely unconscious, or in a state of coma. With the same exception, there were no instances in which the breathing was stertorous, or the motions or urine were passed involuntarily. The patients could always be roused, and (provided they were of sufficient age, and not affected with deafness) it was always possible to make them understand what was said to them. In short, the mental state of the patient was rather that of extreme apathy or indifference than of perversion, for it was only occasionally, and particularly when he was roused, that he talked to imaginary persons, or referred to unreal objects.

##### 5. *Contraction of the Muscles of the Back of the Neck.*

This impairment of consciousness, whether attended with delirium or not, is accompanied, and often preceded, by that characteristic symptom, which in Germany and Sweden communicated its own designation to the disease itself (Nackenstarre, Genickkrampf, Nacksjuka, &c.) The muscles of the back of the neck become the seat of exquisite pain, and in consequence the patient, by a half voluntary effort, throws back his head, in the same way as a person affected with other forms of myalgia.

This symptom, which occurs so frequently that it is regarded as the most distinctive characteristic of the disease, no less by scientific

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writers than by the vulgar, did not present itself in its acute stage in any of the cases in the excessive form in which it has been described by some physicians. No case came under my observation in which the contractions of the back of the neck were of such a character as to be correctly called tetanic. It was almost always observed that the head was thrown backwards, and that the patient complained of agonizing pain in the nape and occiput, but on placing the hand on the trapezius it was generally found that although any effort to straighten the neck was strongly resisted, and aggravated the sufferings of the patients, no tightness could be felt so long as the head was allowed to retain its retracted position.

It was not till the neck was completely extended that the muscles became hard, and even then the hardness was not for a moment comparable with that which is felt in tetanus.

It is of the utmost importance to notice that there were some instances of patients whom I saw early in the first stage of the disease (the day following the delirium), in whom I could not detect a trace of retraction of the head, or of stiffness or anything else remarkable in the muscles. It appears to me not improbable, that if I had seen these children a day or two later, I should have found that the nape pain had developed itself, for in every instance in which I inquired of the parents of children who had recovered, or were recovering, it was stated that the symptom had existed during the first few days of the child's illness.

As has been already stated, other muscles, particularly those of the belly and loins, and sometimes of the extremities, were affected in a similar way with those of the nape, so that pain was often complained of as vehemently in the belly and the small of the back, as in the neck. The patients invariably lay on their sides, with the knees drawn up, so as to relieve the abdominal muscles, and with the face looking towards the head of the bed, and excessive pain was produced whenever the body was moved in such a way as to extend the painful muscles, and more particularly when the patient was lifted in bed. (See case of Schönrock and others.)\*

Its duration.

#### 6. *Apathy or apparent Stupor.*

I find that in 27 cases which came under my observation, the state apathy, referred to in par. 1, existed in a greater or less degree. The length of time during which the patient remained in this state was remarkable. Thus, in six patients of the ages of 12, 17, 9, 4, 22, and 7, in all of whom there was violent delirium at the outset, the patient subsequently remained in a state of complete indifference to external impressions for periods varying from seven days to five weeks, the number of days (so far as they could be ascertained) being in the several cases 35, 24, 21, 17, 14, and 7, giving a mean duration of 19 days. But as no less than four of these patients emerged from their stupor in a state of complete deafness, there was much difficulty in limiting accurately the period of unconsciousness. Of those cases in which the initial symptoms were followed immediately by the state of apathy or depression without the intervention of violent delirium, one of the most remarkable for its duration was that of Anna Beyer, in

\* Often the pain in the neck and back seemed to radiate to the extremities. Prof. Niemeyer, of Tübingen, whose able report on the epidemic which has prevailed during the past winter in Baden, has been published since the above was written, has referred to this symptom as having existed in a marked degree in one of the cases observed by him at Carlsruhe. (*Die epidemische Cerebro-Spinal-Meningitis in Baden, Berlin, 1865, p. 34.*)



whom this condition lasted for a period of five weeks, during which the patient was at all times able to answer questions, but frequently talked incoherently, while she gradually became weaker and more emaciated.\*

In several children whom I had the opportunity of observing shortly after the cessation of the initial symptoms, the general state of the patient was very similar to that which exists in tubercular meningitis, so much so that I am not able to draw any distinction between them. Thus, at the village of Letzkauer Weide I saw, with Dr. Knapp a child, aged 5, named Martin Dein. He had been taken ill, on the preceding day at 9 a.m., with pain in the head and vomiting, followed in a few hours by delirium and "convulsive movements." I found the child lying with his eyes half open, squinting slightly inwards (the left more so than the right). When called by name he did not respond, but when raised up uttered plaintive cries, and the pupils, which were contracted so long as he lay quiet, became dilated. The pulse and breathing were frequent (pulse 132, respirations 36), and the former was small and weak; the countenance was pale and the surface hot; the bowels were confined, and vomiting recurred at intervals, especially when the child was moved. A similar case was observed at Dantzie.

In both of these instances, the special spinal symptoms were almost absent, but even when the retraction of the head and the localization of the pain reminded one that the spinal cord was the main seat of disease, the constitutional state and cerebral symptoms were identical with those of hydrocephalus. Its characters.

Several of the adult patients, whom I had the opportunity of seeing from day to day in the hospital from an early period, were throughout sufficiently conscious to answer to their names, and even reply to questions correctly if their attention was first aroused. The patient Stroessel, who died on the tenth day without having been violently delirious at any period of his illness, was rational at intervals even to the last, although he almost always wandered and talked to imaginary persons. In Schönrock's case, after the violent delirium of the first day had subsided, the patient remained in an excited state for two days, constantly uttering cries of pain, tearing the cold applications from her head, and talking incoherently. The case of Jeschke was in every respect similar as regards the mental state of the patient.

So long as this condition lasts the patient remains in bed and gradually loses strength and flesh. Restlessness, nocturnal delirium,

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\* A. B., aged 6, residing in one of the poorest streets in Dantzie, came under the care of Dr. Lissauer on the 10th of February. It appeared that during the previous week she had had three febrile accessions, each preceded by shivering, which had followed each other at nearly regular intervals of two days, and were accompanied with headache. When Dr. L. saw her she had had a fourth and more severe attack, attended with copious and repeated bilious vomiting, shortly after which the head became painfully retracted, and she passed into a state of apparent stupor attended with tranquil delirium. It soon became evident that her hearing was impaired, for although she could be roused by moving her in bed, she did not answer to her name, and appeared quite insensible to sound. At the same time the usual eruption of herpes labialis broke out about the lips. As the case advanced she became excessively sensitive, so much so that she screamed whenever she was touched, or when light was admitted. She remained in the same state for several weeks, becoming weaker and more emaciated. I saw her with Dr. Lissauer on the 15th of April, when she lay listlessly in bed with her legs drawn up, but the head was no longer retracted. At intervals she uttered plaintive cries, but the irritability above described did not exist. She did not put out her tongue when asked, however loudly, but could be at once induced to do so by signs. Pulse 96; respirations 32; pupils dilated and sluggish; emaciation extreme.

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and muscular pains in the back of the neck and loins are still experienced more or less frequently, so that the disease from first to last retains its painful character. But it is invariably observed that as regards all these symptoms its progress is interrupted by marked fluctuations, so that not only the degree of consciousness which the patient manifests, but his constitutional state, as shown by his general aspect, pulse, and mode of breathing, varies from day to day. In some cases the variations are so gradual and insensible that they may escape notice, in others the exacerbations are so marked that they assume the character of relapses. In several children these relapses consisted in the recrudescence of the symptoms of invasion. The patient had rigors and vomiting, headache and fever, followed by delirium, while the pains in the neck and loins returned with all their original violence. After a time these symptoms subsided, but he was left more depressed and prostrate than before. In a few cases the symptoms had recurred with such regularity, at intervals of two or three days, that they were regarded as dependent of malaria and treated accordingly, but in no instance did it appear that quinine exercised any distinct influence in arresting them or preventing their recurrence.\* I find that all the cases in which there were relapses were of long duration, but that in general the sufferer was in the way of recovery. One instance, however, was related to me by Dr. Frick, in which a boy, aged 3, after recovering from the initial symptoms with no worse results than deafness, had a succession of relapses recurring at intervals during a period of three weeks. After one of these he became collapsed, apparently unconscious, and died in a few hours.

In adults general recrudescence of the disease was not so frequently met with,† but it often happened that there were marked variations in the patient's constitutional state, and especially in the intensity of the pain from which he suffered. In the Charité at Berlin I saw, by the kindness of Dr. Nauyn, a patient in whom during a period of three weeks the exacerbations of severe pain in the head and neck recurred at such regular intervals that the patient could predict their advent. These exacerbations always happened at night, and were markedly relieved by subcutaneous injection of morphia.

7. *Temperature.*

In every case in which I had the opportunity, observations were made of the temperature of the body by placing a thermometer in the axilla. I found that in all stages of the disease the temperature was high,‡ seldom falling below 100° Fahrenheit. The highest temperatures observed during its progress were recorded while the symptoms of invasion still existed or had just subsided. At that time the temperature varied from 102° to 104°, and in children was still higher. As the muscular pains diminished, and the patient became less restless and more conscious, and the general state seemed to improve, the temperature subsided; and in Dr. Nauyn's case above referred to, in which there were frequent fluctuations in the urgency of the symptoms, it was distinctly observed that the exacerbations of pain were always accompanied with an increase of the heat of the skin, amounting to 2° or 3° of Fahrenheit.

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\* See "Treatment."

† See the case of Junknischki, No. 5.

‡ This statement is not borne out by the experience of the Baden epidemic. Niemeyer says, "The increase of temperature on the first and second days of the disease is often very inconsiderable."

8. *Pulse.*

As regards the frequency of the pulse my own observations do not enable me to come to any conclusion, excepting so far as to state that in all cases it was greater than natural. In children the pulse was quick throughout, but the acceleration was greatest during the first few days. In adults, in six cases observed in the hospitals, it varied during the progress of the disease from 56 to 98, the average being 85; but in several of these cases it was noticed that its frequency varied considerably from day to day, without apparent relation to the condition of the patient in other respects. The *character* of the pulse was invariably such as to indicate defect of arterial tension. This was indicated by the smart tap given by the radial artery to the finger, the correspondingly sharp first sound of the heart, heard on listening to the chest, the visibility of the arterial pulsation in the neck, and the distinctness with which the second beat of the pulse could be both felt at the wrist and often seen in the neck. This condition was observed only in patients at the acme of the disease, and appeared to me to be associated with the same general conditions as the increased temperature referred to in the preceding paragraph.

9. *Respiration.*

With respect to the rate of breathing the same observations apply as to the frequency of the pulse, for within certain limits I was unable to appreciate any relation between the variation observed and the patient's general state. But the *mode* of breathing was evidently of the greatest importance. In all severe cases, whether of children or adults, the breathing was embarrassed in proportion to the general gravity of the symptoms. This embarrassment was marked by a slow, laboured inspiration, followed by quick expiration and a long pause,—that condition of breathing which is so frequently observed in continued fever (especially typhoid) and is often called *suppurious*.

10. *Phenomena preceding Death.*

In all the fatal cases which came under my notice, the most prominent symptoms which preceded death were those which indicate impairment and perversion of the respiratory function. As the breathing became more hurried and difficult, the general depression became more intense, the pulse became weaker and quicker, and the temperature of the skin more elevated. The following observation will serve to illustrate these statements as applicable to young children. On the 20th of April, I saw in one of the suburbs of Dantzic, by the kindness of Dr. Drost, a child, aged 4, who had been ill 48 hours. He had been suddenly attacked, on the 18th, with vomiting and the usual symptoms. In the evening delirium came on and lasted till next morning, after which the child became tranquil, but (as the parents stated) unconscious. He lay in the usual position with half-open eyes, breathing 40 times in a minute. His countenance was deadly pale and the expression fixed. When disturbed he moaned, and winked when the eyelids were opened for the examination of the pupils. The right cornea was dim, and the right iris contracted, the left widely dilated, but neither pupils were in the slightest degree sensible to light. While I observed the temperature of the skin, which was 104·7 Fahrenheit, I noticed that the respiration was becoming more and more rapid, and I found that the pulse, which had before beaten 150 times in a minute, was imperceptible. This acceleration continued up to a certain moment, when the respiration suddenly became irregular and less frequent. Death followed in a few minutes.

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In the four cases of adults which terminated fatally in the hospital at Dantzic during my visit, the temperatures observed before death were severally 101·8, 102·4, 102·2, and 101·8. In each the respiration gradually increased in frequency till it attained, in the case of Stroessel, who died on the 10th day, 48, in Rahmell and Dupré, each of whom died on the fifth day, severally 60 and 76. In the case of Boldt, who died on the fourth day, the breathing was not counted, but its acceleration was similar. The corresponding pulse rates in the three cases first referred to were severally 120, 128, and 124. These facts, combined with the evidences of hypostatic hyperæmia observed after death, afforded ground for the inference that in these instances, interference of the exudation with the respiratory functions of the medulla oblongata was the immediate cause of death.\*

11. *Increased Sensitiveness.*

In a disease in which neuralgic pain is the leading characteristic, it need be no matter of surprise that tenderness of all the affected parts should be observed either after its cessation or in its intermissions. All of the practitioners with whom I conferred called my attention to excessive sensibility as a characteristic symptom of the epidemic meningitis, but, from the study of the cases in which it was said to exist, it does not appear to me that there is any sufficient ground for regarding this symptom as anything more than a mere consequence or interlude of pain. In accordance with this view, it is met with either in the progress of the disease, or as a harbinger of convalescence. It has been already observed that the intensity of the pain experienced during the progress of the disease is never constant. It invariably intermits, and, during the intermission, all the affected parts are so tender that the slightest movement produces pain. As convalescence is approaching, and the patient gradually awakens out of his apathy, the symptom assumes a more distinct form, and then, for the most part, is described as "hyperæsthesia." It is no doubt a symptom of importance, but scarcely deserves a special designation.

12. *Affections of the Eyes and of Vision.*

Strabismus.

Squinting was observed in twelve cases,† in eleven of which it was internal. In all of the cases excepting one in which observations were made as to double vision, that condition was ascertained to exist. In the exceptional instance there was blindness of one eye.

In seven cases the strabismus was transitory, not lasting more than a few days; in three cases it was of longer duration, lasting more than a week in one, five weeks in another, and a longer period in a third. In one case its duration was not ascertained. In the twelfth case, that of a child at. 2, who had been ill eleven weeks, and was in a state of extreme emaciation, both eyes were drawn upwards and to the right.

The state of the pupils in epidemic meningitis corresponds closely with that which is observed in tubercular meningitis. I found that in children seen during the first days of the disease the pupils were either natural or contracted, the degree of contraction varying according to the condition of the patient at the time. In those patients who were apparently most insensible, the contraction of the iris was most marked,

\* This view is confirmed by observations made in Baden.—Niemeyer, loc. cit., p. 50.

† Niemeyer makes no reference to the occurrence of strabismus in the Baden epidemic.

and then it was observed that as soon as the patient was roused by speaking to him or moving him in bed the pupil dilated. Variations of width often occurred while the patient was under observation, although he had not been disturbed, and no change had been made in the quantity of light admitted. Sometimes it was noticed that one pupil was larger than the other.

In cases of long duration in which there was marasmus and great loss of muscular strength, the pupils were almost invariably dilated. In these instances it was found that they were sensible to light, and that there was no marked impairment of vision. In the case of a child *æt.* 13, in whom this symptom existed to a remarkable degree, the eyes were explored with the ophthalmoscope without result.

Among the most noteworthy of the occasional results of epidemic meningitis are those which depend on acute inflammatory conditions of the eyeball. Two instances of this occurrence came under my observation. On the 12th of April I saw, with Dr. Friedländer, a girl *æt.* 14, named Zornig, who on the 1st of March had been suddenly seized when at school with pain and contraction of the muscles of the nucha of so violent a character that the head was rigidly drawn back. Soon after delirium supervened; on its cessation the patient remained so restless and at the same time over sensitive that she could not bear anyone to move or speak in the room. Subsequently she became deaf, and blind as regards the right eye. On the 1st of April this eye squinted inwards, and sight was impaired to such a degree that she was unaware of a candle held before it. In a short time the deafness subsided completely; vision also improved, and in a week she was sensible of the difference between light and darkness, although unable to distinguish objects. A day or two later she was examined by Dr. Schneller with the ophthalmoscope, who reported that there was *synchia posteria*, and opacity of the vitreous humour. On the 23rd of April vision was still improving.

On the 19th of April I saw with Dr. Scheel, at Schmeerblock, a patient named Dorothea Pasewerk, *æt.* 12, who had been taken ill on the 28th of February with headache, vomiting, and pyrexia. Soon after delirium came on, and the head was retracted. For the next four nights she was delirious, and in the day usually unconscious. During the fifth night she slept better, and on the following day it was observed that there was *iritis*. When I saw her, both pupils were contracted and fixed. The left was of irregular form, its horizontal diameter exceeding its vertical. The margin of the iris was indented, exhibiting a jagged and blackened outline. The right pupil was more regular in form, but otherwise in a similar condition. In inspecting the right eye with a strong front light, the pupil presented an opalescent deep-seated opacity, probably arising from alteration of the vitreous humour. The child was entirely unable to distinguish between light and darkness.

During the epidemic which prevailed in Bromberg in 1864, several cases of a similar nature occurred, in which the results of ophthalmoscopic examination were recorded by Dr. Salomon. In a patient, J. P., *æt.* 7 months, *iritis* existed on the fifth day, with purulent infiltration of the whole pupil, in consequence of which adhesions were formed between the pupil and the capsule of the lens, which did not give way to treatment. In R. T., *æt.* 7 months, *iritis* did not appear till a later period; it yielded to treatment with iodine of potassium and atropine, but the patient remained absolutely blind. It was found on examination with the ophthalmoscope that there was *synchia posteria* of a similar character to that described in the case of Pasewerk, with central opacity of the lens, separation of the retina from the choroid, and atrophy of the eyeball. Similar conditions existed in two other cases.

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Deafness was observed in ten cases, without including a doubtful case in which it seemed possible to regard the apparent deafness as a part of the general state of indifference to external impressions with which it was associated. Of these patients, three were under 10 years of age, the rest between 10 and 17. In six of them the affection appeared during the first few days, and in three in the second week. In one case it was not observed till the fourth week.

The deafness was proved to be absolute in the following cases: Edward Baumann, æt. 17, of no occupation, residing in one of the low streets of Dantzic (Kehrwieder Gasse), was admitted into the town infirmary on the 18th of March. His mother stated that he was taken ill on the 14th with headache, thirst, feverishness, and vomiting so urgent that he retained nothing. Soon after he became violently delirious, so that he could with difficulty be kept in bed. At the time of his admission he appeared to be quite deaf, and was still delirious, but the latter symptom soon subsided, and was followed by apparent insensibility. Sometimes he seemed conscious, though deaf, at others he was thought to be comatose. The following notes were taken at the hospital:—April 11th. Patient is lying in bed in the usual position, the head strongly retracted, the lower limbs drawn up. His expression is stupid, and he moans with each inspiration, crying “Au weh!” So long as he is allowed to remain on his side there appears to be little suffering, but when he is turned either on his back or face his countenance is distorted with pain, and his cries become agonizing. The pain is increased when the trapezius and the muscles on each side of the lumbar vertebræ are pressed upon, all of which become tight when he lies on his back, but the tightness is not felt when he is replaced in the contracted position that he generally assumes. Skin dry, pale and anæmic; temperature 98.4; pulse from 60 to 64; respirations 22; pupils natural; appetite bad; he eats without difficulty when fed with a spoon. He has had leeches applied repeatedly to the nape—in all 60, calomel in purgative doses, and ice bags continuously. No indication of hearing can be obtained, although he is evidently conscious. I saw the patient again on the 13th and 14th, and found that he was rapidly emerging from his stupor, and that the pain was much diminished. On the 14th he could lie on his back, and could hear and answer questions when loudly spoken to. His appetite was much improved, and his tongue moist. He continued to progress till the 23rd of April, when he was able to raise himself and could hear well.

On the 18th of April I visited a child named Augusta Gleiss, at Schönbaun, in the Nehrung. Her mother, a most intelligent and well-educated woman, stated that she had been taken ill, on the 25th of February, with headache, vomiting, and feverishness. Soon she “lost consciousness,” and remained in bed in the same state for six weeks, after which she became convalescent. At first there was stiffness of the neck, but it soon disappeared. She was observed to be deaf from the second day of her illness. At my visit she was still very weak, and pale and delicate looking, but out of bed. The pulse was quick (104), and the tongue white and dry. To test her deafness her mother wrote on a slate, “Hör doch was ich sagen werde,” and then shouted “Augusta” in her ear. There was not the slightest sign of hearing.

At Garezau (Stargardt) I saw with Dr. Frick a child named Augusta M., who was taken ill on the 30th of March with the usual symptoms of accession, which were followed by retraction of the head, “unconsciousness,” and deafness. After the 10th of April she began to



improve, but still suffered from occasional fits of shivering, followed by pain, retraction, and stupor. At my first visit I found there was no pain excepting when she was raised in bed, and no stiffness of the muscles. Pulse 130, respirations 32, pupils reacted slowly. To all questions written on the slate, she answered readily, but when the words "Can you hear?" "Can you read?" &c. are shouted, she only replied, "Ich kann nicht hören."

There were several other cases of complete deafness. In one of the suburbs of Dantzic I saw with Dr. Friedländer a child named Ernestina Samalsky, æt. 4 years and 3 months. She had been taken ill on the 23rd of March with headache, vomiting, and thirst, which were followed by great agitation (delirium), with cries of pain. After this state had subsided, she remained in a condition of indifference from the 26th of March to the 9th of April, during which period she was not only deaf, but did not speak a word. The following case, related to me by Sanitätsrath Dr. Hildebrandt, was remarkable from the advanced period of the illness at which deafness supervened. A boy æt. 11, the child of wealthy parents, was, on the 5th of March, suddenly attacked with vomiting after premonitory dyspeptic symptoms, which had lasted for several days. After the vomiting had continued three hours, Dr. Hildebrandt was sent for, and found the patient collapsed, his skin hot, his pulse scarcely perceptible, and his eyes deeply sunken. Although he seemed sinking, six leeches were applied behind the ears, and allowed to bleed freely. The child recovered slightly, but remained as if unconscious, with eyes half open, and neck strongly retracted for twelve days, during which the usual cries of pain were uttered, especially when he was moved, or even touched. From this time he slowly regained appetite and strength, but during the fourth week his hearing became impaired, and at the time the case was related to me he was absolutely deaf.

In several instances the deafness, like the other symptoms, appeared to vary considerably from day to day. Thus in the case of Moritz W., æt. 15 (related in the appendix), there was at first excessive sensibility both to sound and to other sensations, but on the 4th day his hearing became impaired; in three days more deafness was almost complete, after which he gradually recovered his hearing. In the case of Zornig, already referred to, deafness attained its greatest intensity during the second week, after which it declined. In two cases in which there was absolute deafness at the commencement, there was either complete recovery, as in the case of Baumann already related, or hearing was partially regained, as in that of a boy named Olcheffsky, the child of the schoolmaster at Schmeerblock in the Niederung, who in the fourth week of his illness could hear when loudly spoken to.

As regards the nature of the affection there appears to be good reason for believing that, like the blindness observed under similar circumstances and sometimes in the same cases, it is dependent on inflammatory changes in the organ of hearing itself. Dr. Klebs was kind enough to show me in the Pathological museum of the Charité at Berlin a preparation of the internal ear of a soldier who had died of epidemic meningitis complicated with deafness, in which fibrinous adhesions existed between the bones of the internal ear and the walls of the vestibule. Dr. Klebs stated that in the recent state the mucous lining of the vestibule was detached. My attention was drawn by Dr. Lissauer to a case reported to the Medical Society of Nuremberg of a young woman who died of epidemic meningitis on the eighth day, having been deaf from the commencement. Both tympana were natural, but in the left membrana tympani was found a dense white

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thickening as large as a pin's head. On the same side the lining membrane of the semi-circular canals was distinctly thickened and loosened, and in the anterior canal there were semifluid (sulzig) purulent masses.

## D.—POST-MORTEM APPEARANCES.

I had the opportunity of investigating the post-mortem results of cerebro-spinal meningitis in four cases only. Of these one (case 4) was of a soldier in the military hospital under the care of Oberstabsarzt Kuhn, under whose direction the autopsy was performed, and to whose kindness I owe the opportunity of being present. One was a private patient of Dr. Friedländer (case 1), while the other two (cases 2 and 3) were patients in the Marien hospital under the care of Sanitätsrath, Dr. Hildebrandt. In the last-mentioned cases the examination was performed by myself with the greatest care. The autopsies took place at various periods (from 7 to 46 hours) after death. In cases 2 and 4 the previous duration of the disease was five days, in case 3 it was ten days, and in the case 1 eighteen days. In all, the lesions discovered were absolutely characteristic of cerebro-spinal meningitis.

In the two recent cases (2 and 4) there was no emaciation, in the other two this condition existed in a degree proportional to their duration. In all there was marked post-mortem rigidity of the extremities, but not of any of the muscles which had been contracted during life. Purple discoloration of the dependent parts was also observed in each instance, while the general surface was pale; in one of the rapid cases (4) the discoloration was excessive, and there were moreover petechiæ of various sizes scattered on the trunk and inferior extremities.

In opening the skull very marked indications of hyperæmia were observed, in the diploe (case 1) and in the dura mater, the vessels of which bled very freely, while its internal surface was highly coloured and minutely injected. The sinuses were always found full of soft black coagula, but I never observed any "firm fibrinous masses."\* In one instance (case 3) unusually large Pacchionian granulations, which appeared to be softened and purulent, projected through the dura mater near the longitudinal sinus.

In all cases the surface of the arachnoid covering the hemispheres, appeared smooth but excessively congested. In those which were most acute (2 and 4) the veins were markedly distended with blood, and there was fine arborescent injection of the cerebral arachnoid. In case 4, which was protracted, these appearances existed in a less degree, the convolutions being flattened, and the sulci more or less effaced by the distension of the ventricles.

The pia mater was infiltrated with purulent exudation in each instance, but great differences were observed as to its extent and character. It, for the most part, surrounded the larger venous trunks occupying the intergyral subarachnoid spaces over the sulci, but in case 2 it formed, in some parts, patches under the arachnoid of such extent as to conceal the convolutions. Its consistence and colour varied. In case 3, in which it was found in much smaller quantity than in the rest, it was semi-translucent and gelatinous, but in the other three it had a consistence approaching that of brain substance, and a whitish yellow colour. The pia mater could always be easily stripped from the surface of the brain without removing with it any of the grey matter.

\* Firm fibrinous masses (derbe Fibringerinnsel) were found by Dr. Klebs in the longitudinal sinus.—Berliner Klin. Wchnsch., April 16, 1864.

On the base of the brain there was also great variety in the extent of the exudation. In case 1 it extended in a thick layer from the optic commissure to the medulla, covering all the adjacent parts and enveloping the cranial nerves. In case 2 the appearances were similar, but the quantity of exudation was much less, while in cases 3 and 4 the base of the brain was entirely free, with the exception that in the latter (the case in which the exudation was most abundant on the convexities) it extended from thence into the Sylvian fissures.

On the superior surface of the cerebellum there were patches of exudation in three of the cases. In one of them (case 3) purulent infiltration of the pia mater extended from the apex of the cerebellum along the venæ Galeni continuously to the choroid plexus.

In two of the cases (2 and 3) the lateral ventricles contained scarcely any liquid, but in one of them, as above mentioned, the choroid plexus was soaked with pus, and a quantity of yellow pus was found in both of the posterior cornua. In two cases the ventricles contained an abnormal quantity of liquid. In case 1 the liquid was turbid, containing flaky masses of purulent exudation, and distended the ventricles very considerably, while in case 4 it was clear although stained with blood, and did not exceed one or two ounces in quantity.\*

The substance of the brain was of natural consistence in cases 2 and 4, but in 1 and 3 it was unnaturally moist and yielding; in 3 this maceration was very inconsiderable, but in 1 it was much more marked, especially in the neighbourhood of the distended ventricles. In cases 1, 2, and 3 the brain was carefully examined, and I can state confidently that there were no circumscribed softenings of the brain substance (so called foci of encephalitis).† The grey matter immediately under the pia mater was of natural consistence, although it exhibited the products of inflammation when examined microscopically.

The appearances observed in the spinal cord were altogether analogous to those already described. The sheath always exhibited marked hyperæmia, and usually felt distended to the finger. On slicing it open it was invariably found that the vessels of the visceral arachnoid were swollen out with blood, and the whole membrane minutely injected, but that no purulent or fibrinous exudation was contained in the arachnoid sac.‡

Underneath the arachnoid there was purulent exudation in every case, but, as in the brain, it varied both in quantity and extent. In case 1 it extended from the cervical swelling to the cauda equina, covering the cord completely, although much more abundant posteriorly than anteriorly. In cases 2 and 3 the cord was covered to the same extent posteriorly, but was almost free from exudation anteriorly. In all three it was extremely abundant on the cauda equina, so that in removing the cord in its sheath from the spinal canal, a quantity of purulent liquid escaped from the cut end of the nerves. The exudation was partly liquid, partly concrete, the sub-arachnoid space being

\* Niemeyer found that in some cases the inflammatory process extended either through the hiatus Magendii from the surface of the brain into the fourth ventricle, and from thence into the lateral ventricles, or directly into the latter through the fissura transversa cerebri.—Loc. cit., p. 22.

† In Niemeyer's cases no yellowish or reddish softenings were found (loc. cit., p. 22), but Dr. Klebs told me that on two or three occasions he had found in rapid cases of cerebro-spinal meningitis foci of inflammatory softening varying in shade from straw colour to red in the centrum ovale. In each of these cases he had also found indications of recent endocarditis; in more protracted cases there had been white softenings. Dr. Klebs's observations will shortly be published.

‡ Dr. Klebs in one case found bands of adhesion between the opposed surfaces of the cord and sheath.



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occupied with purulent liquid, while the arachnoid on its visceral aspect was lined either with a continuous layer of uneven thickness, or with irregular patches of concrete pus. These layers or patches were usually very soft, but in case 1 they were sufficiently firm to be felt distinctly through the dura mater before it was divided. In cases 3 and 4 (so far as the imperfect manner in which the cord was examined allowed me to judge) the anterior surface of the cord was free from exudation. In 2, there was none on the anterior surface, except at the lower end, while in 1, the whole surface of the arachnoid was lined with an irregular patchy layer of exudation, showing itself in some parts merely as opacity or thickening of the membrane. The exudation did not extend in any case either posteriorly or anteriorly above the cervical swelling.

Microscopical  
observations.

The microscopical examination of the exudation gave similar results in all the four cases. The solid or semi-solid material with which the cerebral and spinal arachnoid was lined, was always found to consist of cell-like bodies, either adhering to each other so closely that they could not be completely separated, or embedded in a transparent interstitial substance, while the sero-purulent liquid which occupied the spinal sub-arachnoid space, and in some cases the ventricles, exhibited corpuscles and granules floating freely.

The cell-like bodies, although in general resembling pus corpuscles, did not present that uniformity of size and character which is not met with in normal pus. They were usually, but not always, of regular circular contour, and varied in diameter from  $\frac{1}{3500}$  to  $\frac{1}{1200}$  of an inch. Occasionally they exhibited the appearance of an external cell-membrane, but in most instances this could not be made out even in perfectly fresh exudations, as, *e.g.*, in those cases which were examined as early as eight hours after death. They invariably contained numerous granules, some of which were cleared away on the addition of acetic acid. Those which remained were highly refractive, but did not assume any special form or arrangement. The interstitial substance was beset with granules, some of which were albuminous, others fatty. It was most abundant and distinct on the surface of the spinal arachnoid, where it infiltrated the fine connecting tissue and minute blood vessels of the pia mater.

## E.—ÆTIOLOGY.

In estimating the efficiency of various causes in determining an outbreak of disease, it is most natural, and therefore most advantageous, to consider, first, those which relate to the local peculiarities of the district in which the epidemic prevails; and, secondly those which arise from mode of life, social relations, and other personal conditions.

Climate and  
malaria.

The only local conditions which appear to me to be of real importance as probably having some share in determining the preference of meningitis for the two localities in which it manifested itself most severely, are those of climate and malaria. With reference to climate, I do not think it possible to disregard the remarkable fact that the neighbourhood of Schönberg not only overlooks the whole of West Prussia and of the southern shores of the Baltic, but that the summit of the range called the Thurmberg, which may be regarded as the centre of the epidemic area in Berendt and Carthaus is the highest point between the Hartz and the Ural Mountains. I have already

shown how long and severe the winter is in this district, and how greatly its climate differs from that of Dantzic itself or of the other adjoining districts near the Vistula, the Nehrung, and Niederung. In these districts, although the winter temperature is comparatively mild, this advantage is almost counterbalanced by the exclusive liability to pernicious intermittents consequent on the annual inundations. So that it does not appear to me unreasonable to attribute the fatal character of the outbreaks of the meningitis which occurred at Schmeerblock, Jungpfer, Bodenwinkel, and one or two other places in the Niederung, to the depressing general influence of malaria.

As regards personal conditions, it is convenient to distinguish between those which are manifestly common to infected and uninfected districts, and can therefore have no title to be regarded as determining causes, and those of which the operation is more or less confined to the area of the epidemic.

Of the first class are overcrowding and want of ventilation and of domestic drainage. The most marked instances of overcrowding were met with in the four-roomed cottages already described at Bodenwinkel, in one of which I found no less than 19 children with their parents inhabiting the four small rooms of which the cottage consisted. In several other villages of the Nehrung cottages of similar construction were observed, which were occupied in the same manner, but it cannot be stated either that in that district there was more overcrowding than in others, or that the overcrowded cottages were more liable to invasion than those of which the inhabitants were less numerous. Indeed, in the instance referred to, only two of the nineteen children had contracted meningitis. It is to be borne in mind that in Germany the evil effects of overcrowding are very much aggravated by the want of ventilation. The stoves which are in constant use give rise to a very inconsiderable removal (and consequently exchange) of air, so that I found that the air of the cottages was almost always pervaded by some horrible smell arising either from cooking, from articles of food, from animals kept in the house, or from the breath and exhalations of the occupants. The want of house drainage and of any appliance for the collection and deposit of excreta is another condition which (especially in a marshy district) must no doubt exercise a deteriorating effect on the health of all the inhabitants; but as the evil is universal, as every peasant defæcates in the open air in the immediate neighbourhood of his cottage, it would be absurd to attribute any special significance to the fact.

On the hills the diet of the labouring poor is unquestionably bad, consisting, as has been already stated, of oatmeal and potatoes, with the addition of a scanty allowance of herrings and salt pork. This evil must clearly tend to aggravate the bad effects of the severity of the climate. But on the wealthy farms of the Niederung, insufficiency of food appears to me to be out of the question, for although the earnings of day labourers are very miserable in winter, the farm servants, who constitute the bulk of the labouring poor, are paid enough to provide for their families where food is so abundant and so cheap.

No facts were met with in the course of the inquiry which afforded ground for believing that epidemic meningitis was capable of being communicated by personal intercourse. The following considerations tend towards a contrary inference.

1. No single instance was related to me in which there was the slightest reason to believe that any communication had taken place

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Overcrowding.

Want of ventilation.

Want of house drainage.

Diet.

Contagion.

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between the family in which the first case occurred in any district and one previously infected.\*

2. The disease broke out in the two districts of the department of Dantzie, which were eventually most severely visited, so far as can be ascertained, at the same time, viz., about the 15th of January, although these places are at a distance of at least 30 miles from each other.

3. In the populous town of Dantzie, where there are on an average 18 persons in each house, although the disease had existed since February, the total number of cases was very inconsiderable. It is moreover to be noticed that they occurred indifferently in all parts of the town, and that no single instance was met with or heard of in which two persons were attacked in one house; and that although the ventilation of the hospitals is obviously exceedingly defective (as judged by English standards) there was no transmission of the disease from one patient to another.

4. In those families in which more than two children were attacked about the same time, the intervals between the attacks were so short, that it could scarcely be supposed that there had been communication from one child to another.

## F.—TREATMENT.

As the treatment adopted by all practitioners was as nearly as possible the same, it was more possible to judge of its effects than it would otherwise have been. Unfortunately, the cases were extremely few in which any of the means used appeared to exercise an appreciable influence in modifying the progress of the disease. In almost every case, the practice during the acute stage consisted in the application of leeches or cupping glasses behind the ears or to the temples, in the application of cold to the head, and in the internal administration of calomel in repeated doses of one or two grains.

As local abstraction of blood was invariably combined with the application of cold (ice or snow, whenever they could be obtained,) its effects could only be judged of in combination. It was the opinion of all who had had most experience of the disease in its severest forms that no advantage could be hoped for from this remedy unless it were adopted while the initial symptoms still lasted, and that if the patient had already lapsed into the state of indifference, and especially if the breathing had the peculiar character described in par. 9, (slow inspiration, quick expiration, and prolonged pause,) even though the face might still be flushed, and the skin feel warm, it was already too late to apply leeches. On the other hand, it appeared to be the general result of the experience of those who had seen the disease in its most formidable aspects, that even in cases in

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\* The opinion above expressed is generally entertained by all the medical profession in Dantzie and the neighbourhood, the only exception that I know of being Dr. Marcuse, of Carthaus. It is also in accordance with the experience of all those who have had the opportunity of observing the epidemics which have prevailed in other parts of Germany. I may refer to Dr. Hüter, of Marburg, Dr. Scheffer, of Nentershausen, near Eisenach (where the disease prevailed very extensively last April), Dr. Zuelchaur, of Graudenz, Berliner Klin. Wehnsch., May 1, 1865, Dr. Salomon, of Bromberg, (loc. cit., p. 184), Dr. Dotzauer, in the Department of Oberfranken, Bavaria, where more than 200 cases last January and February (Die Mening. cereb. sp. Epidem. in Oberfranken: Aertzl. Intell. Blatt, Munich, March 19, 1865), Drs. Merkel and Reuter, of Nuremberg Vorläufige Bericht über eine Epidemie von Mening. cereb. sp. (*Ibid.*, March 26, 1865).



which the onset was most violent, free local bleeding during the first few hours, while the patient was still vomiting, might be expected to be attended with benefit, and occasionally produced the most striking results. Thus at Gotteswalde I saw, with Dr. Scheel, two patients (farm servants) who, although they had been taken ill respectively only six and four days previously, were already convalescent. In both these cases, the initial symptoms had been immediately followed by delirium which in one had been of so violent a character that it had been necessary to secure the patient. As the farms at which these men were employed were within a short distance of the doctor's residence, leeches and ice bags had been at hand within a few hours after the symptoms declared themselves. It appeared to be reasonable to refer the favourable result observed in these instances to the promptitude with which recourse was had to the appropriate remedies. My own opportunities were of course far too limited to enable me to form any opinion on the question, but I think that the complete concurrence of opinion among practitioners is sufficient to warrant the statement that, notwithstanding the generally negative results which are observed, leeching, and the application of ice-cold to the spinal cord, is the only mode of treatment by which the progress of the disease is likely to be arrested, and that its utility is confined to the first day, and in some instances to the first few hours after the patient has begun to vomit.

The employment of calomel in frequently repeated doses, varying from gr. j. to gr. iij., was as universal as that of local bleeding. It was given partly as a purgative, partly with a view to its so-called constitutional effects. Its purgative action was promoted by combining it with jalap, or by injections, or by administering at the same time infusion of senna with sulphate of magnesia, or either of these remedies separately.

In cases in which there were periodical exacerbations of pain, especially if they were accompanied or preceded by febrile accessions, it was the habit to give quinine. Although some practitioners thought this remedy useful and employed it in large doses, others were of opinion that the results were negative.

The advantages obtained by the administration of morphia after the initial symptoms had subsided, as a means of calming the restlessness of the patient, of relieving the violent pain experienced in the neck and back, and thus inducing sleep, appeared to be unequivocal, nor did it seem to be attended with any unfavourable effects afterwards. It was given either by the mouth (in doses of  $\frac{1}{8}$  to  $\frac{1}{4}$  grain), or by subcutaneous injection. Of the two methods, the latter seemed preferable.

In the later stages of the disease various vegetable tonics were employed, with which it was usual to combine iodide of potassium, especially in cases in which there was impairment of vision or hearing, persistent muscular pains or contraction, or other indications that the disease had left behind alteration of structure in important organs.

## APPENDIX.

## G.—APPENDIX OF CASES.

No. 11.

Case 1.\*

*Cerebro-Spinal  
Meningitis  
about the Lower  
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History and  
progress.

*Bertha Roschnitzki*, aged three years, under the care of Dr. Friedlander. The child, who resided in one of the suburbs of Dantzic, and was previously healthy, was taken ill on the 26th of March with headache, pain in the back, flushing of the face, and excessive vomiting. When first seen by Dr. F. she was already in a state of stupor, lying on her side with the head thrown back and the legs drawn up. Whenever she was placed in any other position she uttered cries of agony. She remained in the same condition until I saw her on the 11th of April. At first ice had been applied to the nape, and a blister to the ears. Calomel was given in repeated doses, the purgative action of which was promoted by injections. Iodide of potassium was given with decoction of bark, and a liniment containing chloroform, and *Ol. Hyoscyami* was used to allay the pain in the neck.

State when examined.—Skin pale and flaccid; no eruption; temperature 100, pulse 152, respirations 78; breathing difficult and oppressed. On lifting her in bed, the child uttered inarticulate pitiful cries of pain, and her countenance became distorted; there were no such cries when the vertebræ were pressed upon, nor was any tenderness evinced anywhere. When the child was lifted, the head remained fixed in its original position; pupils neither dilated nor contracted, the right absolutely insensible to light, the left very slightly. There is marked internal strabismus, and both eyes remain open, and have a fixed lustreless expression. Tongue moist, coated with white fur, through which red papillæ are visible. On the following day I saw the child again. The dyspnœa had increased and an eruption of sudamina had appeared on the chest and belly. The child could not take food, and was evidently sinking.

She died on the following morning; shortly before her death her mother stated that she appeared to have become more conscious, and that, although she had not spoken for some days previously, she uttered the word “mamma.”

Autopsy, nine hours after death. Present: Drs. Friedlander, Keber, and Lissauer.

External ap-  
pearances.

General surface pale; marked emaciation; rigidity of the muscles of the thighs, none of the trunk or neck; sudamina over the whole surface of the abdomen.

Spinal cord.

On exposing the sheath, it was observed that a quantity of purulent exudation-fluid had escaped into the spinal canal at the lower end by rupture of the dura mater. The cord contained in its sheath having been removed and its anterior surface exposed, it was found to be covered with detached patches of exudation of the usual consistence, extending more or less continuously from the cervical swelling to the cauda equina. On turning it over, and exposing its posterior aspect, it was found to be covered to the same extent with a much thicker and more continuous layer. In pursuing the dissection it was found that this layer was firmly attached to the visceral aspect of the arachnoid, but that it lay loose on the surface of the cord, being separated there-

\* All of the following notes are my own, excepting where otherwise stated. In cases 1, 2, and 3, the autopsies were performed by myself, and in case 4 under my own observation.—J. B. S.

from by a quantity of purulent fluid, which occupied the subarachnoid space.

The calvarium was remarkably thin and the diploe appeared congested. The external surface of the dura mater was also hyperæmic and its veins were distended with blood. On dividing this membrane, and exposing the brains the following appearances were noted:—Convulsions much flattened and the surfaces somewhat dry; veins moderately distended; injection of arachnoid not excessive; yellow exudation under the arachnoid was observed in a few intergyral spaces near the longitudinal fissure, and in a few others on the upper and outer surfaces of the hemispheres, not more on one side than the other; but no part of the surface of the hemispheres was completely concealed. On slicing the brain horizontally so as to open the right ventricle, a very large quantity of turbid liquid escaped; this liquid was muddy, not sanguinolent, and exhibited large flakes or masses of concrete pus. The corpora striata and thalami optici, and indeed all the parts forming the floor of the ventricles were pale and remarkably soft, particularly anteriorly. The third ventricle was also full of purulent fluid and its walls very soft. On exposing the base of the brain it was found that the anterior aspect of the pons varolii was covered with a layer of exudation at least  $\frac{1}{8}$  inch thick, which was easily dissected from it. This layer extends *outwards* to the inferior surface of the cerebellum, the central part of which surface it covered, leaving the lateral aspect of the organ uncovered, *forwards* as far as the chiasma, but not further, and *backwards* over the anterior surface of the medulla oblongata. On the upper surface of the cerebellum there was also a small patch of similar exudation. The substance of the brain was everywhere pale, soft, and apparently anæmic. The sinuses contained only semifluid black coagula. On opening the thorax it was found that both ventricles of the heart contained black soft coagula, the right in the largest quantity. The lungs were in a natural state, with the exception that the right was hyperæmic throughout, and exhibited complete collapse at the base posteriorly. Careful examination showed no trace of tuberculosis. All the abdominal organs were found natural. The ascending colon and part of the ilium were slit open and found to be healthy but pale.

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Meningitis  
about the Lower  
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Brain.

Thorax.

Abdomen.

## Case 2.

*Johann Rahmell*, farm servant, aged 30, admitted into the Town Infirmary, Dantzic, April 12th. The patient was first seen on the 13th, when it was related by his master that on the morning of the day before his admission he was seized with rigors, and soon after with purging. In a short time he became violently delirious, continued so during the night, and was brought to the hospital on the following morning.

April 13th. *Rahmell* has been furiously delirious during the night; he is now quieter, but will not allow the coverings to remain on his bed. The pupils are sensible to light. The skin is moist, face bedewed with perspiration, and the cheeks much flushed. Petechial spots, not raised above the surface, each about an eighth of an inch in diameter, were seen in considerable number on the trunk, particularly on the belly. He had been ordered decoct. althææ acid., a tablespoonful every two hours, and 10 leeches had been applied behind the ears. April 14th. He is in the same state as yesterday, but more tranquil; temperature 102·7, pulse 127, respirations 60. The bowels had not been relieved since his admission, although calomel and jalap had been given in repeated doses, in all amounting to ʒj. of calomel and ʒj. of jalap.

April 15th. *Rahmell* died at 10.30 a.m.

History and  
progress.



## APPENDIX.

Autopsy, seven hours after death, April 15th. Present: Drs. Häser, Keber, and Wallenburg.

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On  
Cerebro-Spinal  
Meningitis  
about the Lower  
Vistula, by  
Dr. Sanderson.

External ap-  
pearances.  
Spinal cord.

General surface pale, but beset with hæmorrhagic spots everywhere; these were most numerous and of most regular form on the abdomen. There were already patches of post-mortem discoloration on the dependent parts. Rigor mortis very marked in the extremities. No stiffness of the muscles of the neck.

In opening the spinal canal, the sheath was slightly injured opposite the first dorsal vertebra, when purulent liquid escaped. The dura mater was hyperæmic, and its internal surface minutely injected. On removing the cord and slitting its sheath anteriorly it was found that there was scarcely any exudation or other change, excepting at the cauda equina, where there was a patch of purulent-looking matter; but on slitting the sheath posteriorly, it was found that from the commencement of the dorsal region to the lower end the cord was completely covered with a layer of exudation of firm consistence, over which the arachnoid could be distinguished, although it could not be separated from it. It was easy, however, to dissect the exudation, or rather the pia mater infiltrated with exudation, from the surface of the spinal cord, which it appeared to leave in a perfectly healthy condition. The substance of the cord was not softened in any part.

Brain.

The dura mater was hyperæmic everywhere, its veins being excessively distended with blood. On removing it, the arachnoid was also found to be minutely injected and its veins excessively distended, and underneath it whitish-yellow exudation was seen occupying almost all the spaces between the convolutions of the hemispheres, but in greater quantity in some parts than in others; it was most abundant near the longitudinal suture, and at a distance of  $2\frac{1}{2}$  inches therefrom on either side in the line of the coronal suture. It was noteworthy that the quantity of exudation was about the same on either side, and that its disposition was symmetrical. On slicing the brain horizontally, its substance was found to be firm, but its sections exhibited very numerous blood points. The lateral ventricles contained hardly any fluid. The structures forming the floor of the ventricles seemed to be perfectly healthy. The choroid plexus were not appreciably hyperæmic; they contained very numerous cysts. The third ventricle was normal. On removing the cerebellum with the medulla oblongata and the base of the brain, it was found that the pons varolii, the upper end of the medulla adjoining the pons, and the chiasma, were covered with a moderately thick layer of exudation, which, however, did not extend to the fissure of Sylvius on either side. A patch of exudation was observed on the inferior surface of the posterior lobe, where it rests on the tentorium.

Thorax.

The heart contained scarcely any coagula, a very small quantity of soft black clot being found in the right ventricle, none in the left. The right lung was healthy, excepting that on its posterior surface, near the inferior margin, there was a patch of pleural thickening (not adherent), and that the lung substance was infiltrated with bloody serum at the base posteriorly. The left lung was in a similar state.

Abdomen.

The liver was healthy, hyperæmic. The spleen weighed 1 lb. 7 oz.; it was very hyperæmic and soft, like a typhus spleen. The kidneys were large, but apparently healthy. The mucous membrane of the small intestines exhibited nothing remarkable, excepting congestion. Peyer's patches were in a natural condition. Hæmorrhagic spots, slightly raised above the general surface, were observed here and there on the mucous membrane of the great intestine. Urine taken from the bladder contained a great quantity of albumen.

## Case 3.

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On

*Cerebro-Spinal  
Meningitis  
about the Lower  
Vistula, by  
Dr. Sanderson.*

History and  
progress.

— *Stroessel*, porter at a bank, aged 42, admitted into the Marien Hospital, Dantzic, April 6th. The patient took ill at home with vomiting and headache, and went the same day to the hospital. He was first seen on the 11th of April, when it was stated, that during the preceding five days he had been in the same condition as then. He had not been violently delirious, but had wandered during each night. The bowels were much confined. Shortly after his admission he had been cupped, and calomel had been given in repeated doses.

April 11th.—*Stroessel* answers questions well, but during the visit began to wander and to talk as if to an imaginary person. On lifting him in bed, the head and neck retain their original position, the muscles of the back of the neck feeling stiff. An eruption of herpes labialis\* is commencing on the lips, the vesicles being as yet scarcely formed. Temp. 100'4, pulse 76. April 13th.—He complains of pain referred to the occipital region and extending downwards as far as the seventh cervical vertebra, also of slight tenderness of the extremities. He sleeps tolerably well. The head is more retracted than before, but none of the muscles feel hard except the scaleni. The eruption of herpes progresses, but does not increase in extent. The skin feels natural, as regards moisture and temperature. Pulse 96, respirations 36; breathing difficult, appetite bad; bowels open freely after purgative draught. To day a blister was ordered to the nape, and a mixture containing hydrochloric acid. April 14th.—The patient wanders quietly, answering questions correctly, but usually incoherently. He fidgets the bed clothes, and was observed to mistake one object for another. He has not slept since last night. Lifting him up in bed does not seem to produce much pain, but the head remains rigid as before. His countenance is somewhat flushed and purplish. Temp. 101'8, pulse 120, respirations 48. In inspiration the nostrils dilate, the scaleni and pectorales act strongly, and the larynx sinks deeply. There is dulness of the base of the left lung, extending upwards to the spine of the scapula, and on auscultation bronchial breathing and course mucous râles are heard; the right could not be examined. The bowels have not been relieved since yesterday. To day camphor and benzoic acid have been added to the mixture previously ordered. April 15th.—The patient has slept little, and is in every respect worse. The pupils act sluggishly. As he passed no water naturally the catheter was employed this morning. The skin is bedewed with perspiration; the herpetic eruptions are still visible. Temp. 101'4, pulse 116, respirations 48. The nostrils dilate on inspiration, and there is much laryngeal rattling. The patient is too weak to be examined by auscultation. He was ordered a mixture containing infusum valerianæ and liq. ammoniæ anisatus. April 16th.—*Stroessel* died at half-past 10 o'clock a.m., no material alteration having taken place in his condition.

AUTOPSY, 46 hours after death, April 18th. Present Drs. Hildebrandt and Wallenberg.

General surface pale; post-mortem discoloration on the dependent parts only. Rigor mortis of the extremities remarkably pronounced; no rigidity of the muscles of the neck or trunk. External appearances.

\* In 14 cases in which the date of the appearance of this most constant symptom of Cerebro-Spinal Meningitis was noted, it occurred in 11 before the 6th day, viz., once on the 1st, twice on the 2nd and 3rd, thrice on the 4th, once on the 5th, twice on the 6th. Once it occurred on the 13th day, and once in the third week.

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Brain.

On removing the calvarium excessive hyperæmia was observed of the dura mater, and much fluid blood escaped from its surface. Surface of hemispheres intensely injected; veins distended with blood, arachnoid covering everywhere opaque; its surface moist. The intervals between the intergyral spaces were occupied by semi-transparent exudation of gelatinous consistence; near the middle line this exudation was firmer than elsewhere, but did not anywhere possess the characters of the firm layer of deposit observed in the other three cases.

On slicing the brain horizontally its substance was found to be very moist, and more or less hyperæmic. The ventricles were by no means distended. In the posterior horn of either ventricle a quantity of notably yellow pus was found. The parts forming the floor of the lateral ventricles and the walls of the third ventricle were firm and healthy. The choroid plexus, although not strikingly hyperæmic, were infiltrated with purulent exudation, and it was found that this infiltration extended through the transverse fissure to the exterior of the brain, where it became continuous with patches of similar exudation on the apex and right upper edge of the cerebellum, the pia mater of which organ was everywhere minutely injected. No exudation was found either on the base of the brain, on the pons, medulla oblongata, or in the Sylvian fissures.

On removing the cord with its sheath (which was very hyperæmic) it was found that the arachnoid covering the posterior surface of the organ was opaque, and that its internal surface was lined by a semi-solid layer of quasi purulent exudation. Under this there was a quantity of almost fluid pus, which formed a layer of one-eighth inch thick over the whole length of the cord, from the bronchial swelling to the cauda equina. On the anterior aspect of the cord there was no exudation whatever, and the organ appeared healthy.

Thorax.

Left lung not adherent anywhere. Posteriorly at the base it was excessively hyperæmic and soft; it contained no air, and a portion of it sunk at once into water. The right lung was firmly adherent by its whole surface. At the apex there were two or three small cavities containing greyish puriform fluid, surrounded by masses of old tubercle. At the base posteriorly the right lung was in the same condition as the left, but it was softer (so soft that it could not be separated from the chest wall). Heart natural; the right ventricle contained a very small quantity of soft black clot, the left none.

Abdomen.

The spleen was if anything small, but soft and hyperæmic, as in typhus. The liver and kidneys were apparently healthy, but congested. The intestines were examined and found to be healthy; there was no alteration of Peyer's patches.

## Case 4.

*Carl Dupré*, bandsman, aged 19; admitted into the Military Hospital, Dantzic, April 7th.

History and  
progress.

The following notes were obtained from Dr. Schuenemann, resident medical officer of the hospital:—

Dupré, who six months before had had an attack of typhoid fever (abdominal typhus) from the effects of which he was still suffering, first felt ill on the afternoon of the 6th, after partaking of a full meal of fish. He lost consciousness the same evening and became furiously delirious. On the morning of the 7th, he was restless and still unconscious. Shortly before the visit on that day he had had copious bilious vomiting. There was moderate pyrexia, the patient complaining



only of severe headache. He was ordered to have 10 cupping glasses applied to his neck and spine, and ice bags to the head.

April 8th.—The delirium continued during the night, and was so violent that two men were required to watch him, and he had to be secured to the bed. He complained of variable pain in the neck, but no contraction of the muscles could be observed. Pulse in the morning 68, in the evening 80; temp. 100·4. The ice on the head was ordered to be continued.

April 9th.—State of patient unaltered, except that the pulse has risen to 100. Six leeches were ordered behind the ears and an injection, the bowels not having acted. In the evening the pulse was 80.

April 10th.—The state of the patient is much altered. He lies with the legs slightly drawn up, and has occasional twitching of the upper limbs. The pupils are dilated and react sluggishly. Temp. 101·8; pulse 80. He was ordered a blister to the neck and an injection. In the evening his state was the same. Pulse 80.

April 11th. Much difficulty of breathing. Temp. 104·0; pulse 128; respiration 76. He was ordered a large sinapism to the breast and four grains of calomel every hour. He died at 4 p.m.

**AUTOPSY**, 25 hours after death, performed by Dr. Kühn. Present: Drs. Kühn, Hildebrandt, and Schuenemann.

Body of a well-made man, not emaciated. The surface was of natural colour, but a little pale, and exhibited no eruptions. Rigor mortis well marked.

The calvarium having been removed the dura mater was found to be excessively hyperæmic. On dividing it and exposing the hemispheres, the following appearances were observed: There was extreme distension of the veins of the pia mater, so that they projected like cords on the surface of the arachnoid; there was also fine arborescent injection on the surfaces of the convolutions, excepting where they were covered by exudation. There was a thick layer of exudation of a pale yellow colour beneath the arachnoid, usually occupying only the intergyral spaces, but in some parts covering the gyri as well. This exudation was observed to be most abundant on the right side in the neighbourhood of the veins, which converge towards the fissure of Sylvius, where it concealed the convolutions; in this situation it was not less than one-tenth of an inch thick and was of the consistence of brain substance. It was firmly adherent by its external surface to the arachnoid, which could be with difficulty dissected from it. It could be easily separated from the surface of the brain, which it left in an apparently natural condition as regards firmness and colour, carrying with it the vascular layer of the pia mater. After removal of the brain the ventricles were found to be distended with turbid sanguinolent fluid (the quantity was not ascertained, but amounted at least to an ounce). The cerebellum appeared to be softened, but this was probably attributable to the violence with which it was removed. On its upper surface on the right side I observed subarachnoid exudation of the same appearance as on the hemispheres. On the inferior aspect of the brain the same appearances of vascularity were observed as on the surface of the hemispheres, but much less exudation. On the inferior surface of the middle lobe, following the course of the veins towards the Sylvian fissure, there was a deposit of exudation on either side, and in the Sylvian fissure itself the exudation was (on the right side) nearly as abundant as on the upper surface. On the left side there was also much exudation in this situation. On careful examination I

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- APPENDIX. found that the central parts of the base of the brain were entirely free from exudation. The blood points appeared to be unusually numerous, but on making sections no trace of softening or other lesion could be discovered.
- No. 11. The spinal canal was opened as far down as the 7th or 8th dorsal vertebra. When the corresponding portion of the cord was removed, it was observed that pus escaped from the sheath. On exposing its anterior surface there appeared to be no exudation, but posteriorly the whole surface of the organ was covered with a thick layer of concrete pus, similar and having similar relations to the exudations on the surface of the brain.
- On Cerebro-Spinal Meningitis about the Lower Vistula, by Spinal cord.
- Abdomen. The spleen was removed and found to be of natural size, but soft and congested.
- The other organs were not examined,

### Case 5.

History and progress.

*Elise Junknischki*, servant, aged 20, was admitted into the Marien Hospital, April 18th. During the two days before her admission she had been feverish and had complained of headache and pain in the back and loins, which symptoms had been preceded by vomiting. It was stated that she had been delirious. She was first seen on the 20th, when it appeared that since her admission she had been in the same state as before, but that there had been no delirium. She had been twice cupped on successive days and had been taking calomel in repeated doses.

April 20th.—The patient has not slept and is much oppressed. The pupils are slightly contracted, but dilate when she is roused. The breathing is embarrassed, inspiration being slow, expiration quick. When she is raised in bed, great suffering is evinced, and immediately afterwards the oppression of the breathing becomes greater than before. There is no contraction of the muscles. The cheeks are flushed and an eruption of herpes labialis has appeared around the mouth. Temp. 103·1; pulse 100, visible in the neck; respirations 22. She was ordered an opiate at bed time.

April 22nd.—The headache is diminished, but there is still pain in the neck and loins she has scarcely slept. The herpetic eruption has broken out near the inner canthus of the right eye. Temp. 103·8; pulse 96; respirations 24. The tongue is dry and furred and the gums red and tumid. She has no appetite. Eight leeches were ordered, four to each temple.

April 24th.—The patient complains of pain in the chest and belly as well as the head and back. Her breathing is still oppressed and hurried; on lifting her in bed the breathing becomes worse and the pain is aggravated. There is twitching of the mouth, the angles of the mouth being retracted and the chin raised at the end of each inspiration. The pupils react. Temp. 103·1; pulse 92; respirations 28. The tongue is still coated, but not so dry. There were three relaxed stools during the night.

On this day (24th) I left Dantzic. Dr. Hildebrandt has since informed me, that after the relapse on the 23rd, the patient became progressively worse and died on the 30th.

AUTOPSY, made by Dr. Hildebrandt.

Under the arachnoid covering the hemispheres there was much serous liquid, but only here and there glutinous exudation. As regards the base of the brain, the exudation was most abundant near the optic

commissure and the pons varolii; but the nerves themselves and the brain substance were intact everywhere. The posterior aspect of the spinal cord was covered with liquid purulent exudation, particularly in the cervical and lumbar regions; its anterior aspect was perfectly free.

#### Case 6.

*Josephine Schönrock*, servant-maid, aged 22, admitted into the Marien Hospital, Dantzie, April 9th.—Her illness began on the preceding evening with shivering, headache, and excessive vomiting. Soon after there was great pain in the nucha of the character now existing. When she was admitted, she was so far unconscious as to be unable to give her name or answer questions. Soon delirium came on, which during the night assumed so violent a form, that it was necessary to strap her to the bed. On admission she was cupped at the nape and on the day following on the temples. I saw her with Dr. Hildebrandt on the 11th at 2 p.m., when her condition was as follows:—She lies on her side in a state of constant agitation, uttering violent expressions of pain. The head is slightly retracted, but it is not possible to ascertain the situation of the pain on account of her extreme sensitiveness and unwillingness to be touched anywhere. Cheeks flushed, surface warm to the touch. Crops of herpes labialis are observed on her nose and upper lip; pulse 56, very visible, dicrotous, and soft; tongue coated with white fur, moist; bowels much confined. Calomel had been given in frequently repeated doses until 12 grains had been taken. This morning an enema was administered, after which the bowels were relieved for the first time since admission. April 13th, 8 a.m.—The patient answers to her name but talks incessantly in Polish and (Dr. Hildebrandt says) incoherently. She tears off the cold applications from her head, which is drawn backwards and slightly to one side. With the exception of the scaleni, the muscles of the back of the neck feel soft. No sleep during the night, although  $\frac{1}{2}$  grain of morphia had been given. Skin moist, face slightly flushed; herpes is extending round the mouth; pulse 80, dicrotous; tranquil and sighing breathing; tongue is much coated and dry; bowels open after inf. sennæ. A blister had been applied to the nape and ice bags to the head. April 15th.—Schönrock has been tranquil since yesterday; slept all night. She complains only of the soreness of the blister and of a feeling of constriction at the chest. The pupils act well. The skin feels cool and several new vesicles of herpes have appeared on the nose. Pulse 80; respirations 20; temp. 101·8; tongue moist, still coated. Appetite improving. She was ordered a mixture, containing hydrochloric acid. April 14th.—She complains of headache and pain in the left side. Intellectual state normal. She sleeps well. This morning there is some cough and hoarseness and loud rhonchi are heard everywhere on auscultation, which are found to be referable to the larynx. Skin naturally moist, eruptions as before. Temp. 99·2; pulse 88; respirations 12; tongue coated; bowels regular. An expectorant mixture was ordered. April 17th.—The patient continues better, but the catarrhal symptoms and hoarseness still exist. The complexion is pale, and the herpetic eruption has increased round the mouth, new vesicles having appeared on the lower lip and left cheek. Temp. 97·7; pulse 88, soft and still visible; respirations 16; tongue coated with yellow fur; appetite good; bowels regular. She sleeps well and has no pain except on trying to raise herself in bed. 18th.—She is better in every respect; pulse 84; respirations 22;

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tongue still coated ; bowels regular. 20th.—Tongue cleaner ; pulse 84. 22nd.—The patient continues to improve ; pulse 88. 23rd.—State as before, pulse 80. 24th.—The patient was out of bed for an hour for the first time.

## Case 7.

*Andreas Jeschke*, farm labourer, from Marienwalde, near Dantzic, aged 26, admitted into the Town Infirmary, Dantzic, April 9th. The day before his admission he was affected with vomiting, which lasted the whole day, and with pain in the limbs, and shivering. Towards evening he became furiously delirious, so that it was necessary to secure him. This condition continued for two days, during which time he appeared to suffer from severe pain in the head and loins.

## Progress.

April 11th.—The patient wanders, but answers questions correctly. He complains of vertical head-ache, but not of pain elsewhere. He is still strapped to his bed. The pupils react naturally. The conjunctiva of the left eye is tumid and injected. Skin moist, moderately warm ; cheeks intensely flushed. An eruption of herpes exists all around the mouth, the vesicles being already turbid. Temp. 102·6, pulse 127, respirations 40 ; breathing embarrassed, the sternomastoids acting in inspiration ; appetite natural ; bowels regular. After his admission the patient passed urine involuntarily. The catheter has been used since. On auscultation and percussion the thoracic organs were found to be healthy, and the splenic dullness natural. Ice had been applied to the head, and the following mixture ordered, of which two tablespoonfuls had been taken every hour :—

℞ *Morphiæ Acetatis*.

*Extracti Belladonnæ* āā gr. j.

*Aquæ destill.* ʒ vj.

Misce fiat Mist.

April 13th.—The patient is occasionally delirious, but answers questions when his attention is arrested by addressing him loudly and earnestly. He has slept very little. He complains of headache and pain in the neck and loins, and cries out lustily when he is lifted in bed. One or two new vesicles of herpes have appeared. Temp. 100·5, pulse not noted, bowels regular. April 14th.—He still slightly wanders, but answers questions for the most part correctly. When he is raised in bed, he appears to have great pain in the neck, crying out agonizingly, "For God's sake, let me go !" During the visit he called loudly for an individual who was not present. The pupils act well. Pulse 96 ; respirations 34. Ice bags have been applied to the head, and the same mixture continued.

April 15th.—The patient appears generally worse ; he is in quiet delirium, but answers questions. His arms are secured to prevent him from tearing the ice-bags from his head. Pupils natural ; the injection of the conjunctiva is increased ; the eyes squint slightly inwards. Temperature 99·8, pulse 96, respirations 32. The tongue is dry in the centre, furred on both sides ; urine albuminous ; bowels not relieved.

April 17th.—*Jeschke* does not wander so much as before. The pupils re-act naturally ; skin dry ; tongue coated with yellow fur. Temperature 100·7, pulse 98, respirations 38. The urine contains much albumen.

April 20th.—He still improves, and is quite sensible. He complains of pain in the loins. Pulse 100, respirations 40. Appetite good. Tongue dry and still brown in centre. The urine contains much albumen.

April 22nd.—The patient can lift himself in bed without pain, and sleeps well. Pulse 92, respirations 36. Tongue nearly clean.  
 April 23rd.—Pulse 92, respirations 32. He still improves.

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## Case 8.

— *Barthels*, tin plate worker, aged 17; admitted into the Marien Hospital, Dantzic, April 10th.

The illness began on April 8th, with shivering, head-ache, and vomiting. He was first seen on the 11th, when it appeared that he had had much pain in the occipital region, and had been slightly delirious. Four cupping glasses had been applied to the nape.

April 11th.—The patient wanders slightly, with occasional cries of pain and great restlessness. The face is flushed, and an eruption of herpes labialis is commencing; temperature 102·6, pulse 96, respirations 24, breathing suspirious. Just before the visit he lost four ounces of blood by bleeding from the nose. The cupping was repeated, and at the patient's request  $\frac{1}{4}$  grain of morphia was ordered at bed time.

April 13th.—He slept little, but quietly, during the night. He still complains of headache and holds his hands on his forehead. In changing the position of his head he lifts it with his hands. Since yesterday he has squinted inwards, and on testing him with the fingers he was found to see double. The pupils are sensible to light. The eruption of herpes is extending to the nose; temperature 102·6, pulse 94, respirations 36; appetite slight, much thirst; bowels open once after a senna draught.

April 14th.—Yesterday *Barthels* had another attack of epistaxis, amounting to three ounces, since which he has felt better; the strabismus has disappeared. Although still suffering from pain he can move his head without using his hands. The slight stiffness of the muscles of the neck, which was observed previously, no longer exists. Skin, natural; temperature 101·4; pulse 96, very visible in the neck; respirations 12; breathing suspirious, with prolonged pause between each respiration and its successor. The heart's impulse is very visible, and the first sound loud. Appetite good; bowels not relieved since yesterday. He was ordered  $\frac{1}{2}$  grain of morphia at bedtime, and aqua chlori\* *ad libitum*.

April 15th.—He continues better, complains of pain in the small of the back, but thinks that the pain in the neck and head has been diminished. When he is lifted up he becomes giddy, and the head remains stiff, as if the cervical vertebræ were ankylosed. He sleeps little, but there is no wandering. Skin moist and of natural colour; temperature 100·2, pulse 96, respirations 22, breathing still suspirious; appetite good; bowels have acted twice after inf. sennæ.

April 17th.—The patient has slept better; he has no pain except on attempting to get up in bed; temperature 98, pulse 84, respirations 22.

April 18th.—Still improves and is reading the newspaper; pulse 72, respirations 14.

From this time convalescence progressed until April 24th, when he was able to leave his bed for a few hours.

## Case 9.

*Moritz, W.*, aged 15 years, a strong and healthy boy, came under the treatment of Dr. Abegg (to whom I am indebted for the following

\* The aqua chlori of the Prussian Pharmacopeia, which is extremely dilute.

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notes) on the 10th of February, having taken ill the day before with violent shivering of two hours' duration, followed, as it was stated, by excessive headache, repeated vomiting, and continuous contraction of the muscles of the nape and back.

Feb. 11th.—Great restlessness; skin feels hot; respirations 20, pulse 127, full. He was ordered to have six leeches applied behind the ears, and bags of ice to the head; purgatives and enemata were also prescribed.

Feb. 12th.—Vomiting has ceased; increased restlessness; delirium; violent pain in the nape, loin, and small of the back; great sensitiveness when the vertebrae are pressed upon. Hyperaesthesia of all the extremities; the patient cries when anything is said in the room or any other noise is made, or when much light is admitted; the pupils react well; pulse, 124; bowels not relieved; he was ordered to have 20 cupping glasses applied to the nape and along the spine, and to take two grains of calomel, to be repeated after three hours.

Feb. 13th.—The patient is furiously delirious, but recovers consciousness when earnestly and loudly spoken to; hearing appears improved; no sleep; bowels have acted twice. The application of ice to the head was continued, and he was ordered two doses of calomel, each of four grains.

Feb. 14th.—During the preceding night the patient did not sleep and was very restless. Skin feels hot; pulse 120; eight leeches were applied to the temples, and six grains of calomel with a scruple of jalap were ordered to be taken every three hours. In the evening the patient had slept; the bowels had not acted; respirations 19, pulse 116. And injection was ordered and a quarter of a grain of morphia at bedtime.

Feb. 15th.—He was restless during the night; bowels acted three times. In the evening he was quiet, having slept during the day; the opisthotonos had ceased to exist, only pain remained.

Feb. 16th.—General weakness and pallor; the patient is sometimes quiet, sometimes excited, delirious; he is almost completely deaf. Respirations 28; pulse 128, soft and compressible. He was ordered one grain of sulphate of quinine every two hours. In the evening, pulse 120, fuller.

Feb. 17th.—Since 11 p.m. the patient had been constantly restless, and had complained of headache. Pulse 108, respirations 28. He was ordered blisters to the nape, and to take half a grain of opium every two hours; the application of ice to the head was continued occasionally.

Feb. 18th.—The patient is perfectly conscious, but hears with great difficulty; pulse 108, respirations 28; bowels have acted. A grain of opium was ordered to be taken at intervals of four hours during the evening and night.

Feb. 19th.—He has slept tolerably well, and is perfectly conscious; pulse 108, respirations 26. The opium was discontinued and phosphoric acid given. In the evening pulse 120, respirations 28.

Feb. 22nd.—He is conscious, but still nearly deaf. He has had purging since morning, for which he was ordered bicarbonate of soda with ipecacuanha in cinnamon water.

Feb. 24th.—Opisthotonos has re-appeared, but in a less degree than formerly. He is more sensitive.

Feb. 25th.—General state the same; tongue dry and red. He was ordered five grains of quinine with phosphoric acid every two hours.

Feb. 28th.—Opisthotonos disappeared; bowels act only after enema. During the last five days an attack of shivering has occurred each



day. The attacks have taken place at the following hours; viz.,—On the 24th and 25th at half-past three in the afternoon; on the 26th at 9·30 p.m.; on the 27th at 10·30 p.m.; and on the 28th at midnight.

March 1st.—Pain in the nape and back; tongue slightly coated with white fur; pulse 108. Five grains of quinine were ordered to be taken daily in the afternoon, and a grain of opium at bedtime.

March 5th.—For the first time the patient had no shivering; the quinine was discontinued.

March 16th.—During the preceding night and this morning the patient again shivered, and vomited three times; pulse 108. He was ordered to take Seltzer's water *ad libitum*.

March 17th.—In the morning the pulse was 80. In the afternoon there was a violent attack of shivering, with increased headache and pain in the back, and great hyperæsthesia of the lower limbs down to the toes; pulse in the evening 120. He was ordered a grain and a half of hydrochlorate of quinine with one twelfth grain of morphia every three hours; 24 cupping glasses to be applied to the nape and spine, 16 to be without scarification; ice to be applied to the head.

March 18th.—The patient slept quietly during the night, and does not complain of much pain. There has been no shivering nor vomiting, but the skin perspired freely; pulse 76; bowels have not acted for the last 36 hours.

March 20th.—General state satisfactory; perspiration increased; pulse 96.

March 21st.—The deafness, which was before almost complete, appears to decrease; pulse 80, respirations 16.

April 12th.—The patient is convalescent, but is not able yet to leave his bed, from excessive weakness and wasting of the limbs. His hearing improves gradually.

## APPENDIX.

No. 11.

On  
*Cerebro-Spinal  
Meningitis  
about the Lower  
Vistula, by  
Dr. Sanderson.*

No. 12.—SUBSTANCE OF OTHER COMMUNICATIONS relative to CEREBRO-SPINAL MENINGITIS.

(a.) From Dr. F. J. BROWN, Rochester, October 15, 1865, and Mr. T. P. ATKINSON, November 4, 1865.

No. 12.  
*Communica-  
tions relative to  
Cerebro-Spinal  
Meningitis.*

I.—Case 1.—C. Card, æt. about 20, a domestic servant in the family of a drawing-master at St. Margaret's, Rochester (one of the highest parts of the city) was seized, on September 17th, 1865, with chills. Next day she had violent pains in the head and all over the body and extremities even to the tips of the fingers. For three days there was excessive vomiting. She was ill 8 or 10 days, and recovered without keeping her bed. Leeches applied over the spine gave very great relief. In this case the nucha was stiff and recurved.

Dr. Brown  
and  
Mr. Atkinson.

Case 2.—E. Jennings, æt. 38, wife of an artisan residing in John street, Rochester, a part of the city presenting indifferent hygienic arrangements, was seized with chills on September 30th, 1865. She attributed the seizure to exposure in a hop-garden on the foggy evening of September 25th. When first seen by a medical man (Dr. J. D. Brown, brother to Dr. F. J. Brown) on October, 3 she had violent pains in the nape of the neck and in the back and limbs. Dr. F. J. Brown saw her on the 6th: she was then sitting downstairs in a chair, curved over to one side, with the neck stiff and recurved. On October 7th she took to her bed. On the 9th she was seized with severe headache and

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*Communications relative to Cerebro-Spinal Meningitis.*Dr. Brown  
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Mr Atkinson.

vomiting. On the 10th, when seen again by Dr. F. J. Brown, she was lying diagonally across the bed upon her left side, with her fore-arms flexed on the elbows and rigid, occasionally jerking spasmodically. The pupils were dilated and fixed: there was no strabismus. She was talking now and then to imaginary auditors, but when loudly spoken to turned her eyes without turning her head, and she tried to put out her tongue when directed so to do. The tongue was red, with some yellowish fur, and bare portions. The pulse was uncertain, from 110 to 120, without power. The fæces (dark and offensive) escaped in the bed. The urine was retained, and the catheter required. No rose-coloured spots and no rash. Her sister stated that the respiration became catching occasionally, and that swallowing appeared likely to cause choking. On October 11th she died at 7 A.M., having been comatose for several hours before death. On examination of the body, 36 hours after death, the skull was found extremely thick and dense [she had had inflammation of the brain when a girl]: the membranes were very vascular and of a bright red colour: a large quantity of sero-purulent fluid gushed out on section of the tentorium: the spinal canal, as also the lateral and third ventricles, was full of this fluid, and of flakes of lymph: lymph was infiltrated from the cerebellum to the fissure of Sylvius: the base of the brain was soft and lacerable: the cerebellum of a violet red color and lacerable: the right corpus striatum was softened on its surface into an operculum upon a moderately firm subjacent portion: the pus in every situation looked more like softened lymph mixed with some pus. The spinal cord was not examined. The thorax was not examined. The liver when sliced was of the colour of red lead, and readily converted into soft pulp by scraping with the scalpel: the spleen was turgid, but not softened: the kidneys intensely congested, and feeling crispy as if emphysematous: the small and large intestines healthy, except violet-red injection of the ileum for about 18 inches of its length not far from the cæcum. The other organs were unaffected.

II.—In the previous May and July three cases had occurred which were considered by Dr. Brown as exhibiting symptoms of cerebro-spinal meningitis.

Case 3. does not appear to have been seen by Dr. Brown. It occurred in the practice of Mr. Steddy, a surgeon of Chatham. A boy, believed to be under 14 years old, the child of working people, was seized suddenly, when witnessing the Volunteer Review on Chatham Lines, with symptoms, so far as Dr. Brown could ascertain, of inflammation of the nervous centres, and died with well marked opisthotonos.

Case 4. occurred in St. Bartholomew's Hospital, Rochester, and is reported from the notes of Mr. T. P. Atkinson, resident surgeon to the hospital.

Agnes Gray, æt. 32, a widow, residing at Brompton (part of Chatham) was admitted into the hospital, May 25th, 1865, complaining of pains over the whole body and great debility. She appeared very dull and heavy, and her eyes had a very vacant expression. The sense of hearing was much blunted, and the understanding evidently weakened. There was a loud chattering of the teeth about every five minutes, which seemed increased by any slight excitement. The tongue was covered with a moist whity-brown fur. The pulse was scarcely perceptible. She was first seized, she said, about a week before, with rigors, sickness, pain in the region of the heart, followed by pains over the whole body. On the 26th she was wandering: the teeth continually chattering, though she appeared somewhat quieter on the whole: she complained of pain in the neck and head: the eyelids drooped: the axis of the



eyes was unequal: the right eye turned in. Some indistinct rose-coloured spots, fading under pressure, were seen on the abdomen. Tenderness existed over the whole surface. The slightest touch caused convulsive twitchings of the arms and face. On the 27th she had still pain in the head: the pupils were equal in size: the eyes occasionally squinting and staring: she wandered occasionally. On the 28th she seemed better, the pain in the head was less, but there was still a good deal of nervous twitching: the eyes squinted occasionally. There were still a few spots about the abdomen. The skin was moist and perspiring. The pulse about 98. On the 30th she was not so well: had rigors: more pain of head: twitchings of head, lower jaw, and eyes occurred frequently: the tongue protruded slightly to the left side: the mouth was drawn to the right. On June 1st she was much better, and she gradually improved, and was discharged well on the 21st.

Dr. Brown observes of this case: "On her admission she appeared half-dead of some extraordinary illness, and it was not known whether it was fever or brain-disease. But soon the diagnosis of typhoid fever, with cerebro-spinal inflammatory complications, was established."

Case 5. also occurred in St. Bartholomew's Hospital, Rochester, and is reported chiefly from Mr. Atkinson's notes. Doubts existed whether the case was one of rheumatism affecting the sheaths of the spinal cord, or one of cerebro-spinal neuro-myalgia. Dr. Brown considered it to be the latter.

Caroline White, æt. 63, the accident-nurse of the hospital, was admitted into Watts' Ward, July 11th, 1865, with severe pains all over the body. The wrists were somewhat swollen, but nothing in proportion to the pain experienced. She said they had been rather large for some long time past, though she thought they had increased in size the last week or so. She had had wandering pains for at least 3 weeks, caused, as she supposed, by the draughts to which she had been constantly exposed. The tongue was covered with a dryish whity-brown fur: the appetite bad: the bowels confined: the urine scanty and high-coloured. On the 17th she had slight rigors and sickness, flushed face, exquisite pain in the limbs. On the 18th, severe pain in the back of the neck, and in the left hypochondrium: the neck was thrown slightly backwards: the legs bent up to the abdomen: the brows knit. (She looked strange, with a constant frown. F.J.B.) On the 20th the pains which had been easier the day before were worse, but relieved by a small bleeding. (Violent pains in the back shooting through to the præcordia, F.J.B.) On the 22nd, some delirium is reported as having occurred during the night and early part of the morning. The pains were now very acute. Several small slightly elevated brown spots had appeared on the abdomen. (A measly rash appeared on the abdomen: notwithstanding which, the tongue, which was dry and furred] at first, was now natural. F.J.B.) On the 23rd there was no delirium: and the pains which had been relieved the day before by leeches had become more severe. By the 26th she was better, though the pains were still very acute at times. August 2nd, she was going on well, but the pains had not by any means gone: the swelling of the joints was rather less. By September 6th she had very little pain, and desired her discharge. (Dr. Brown, in his account of the case, mentions the existence of insomnia, finally overcome by Dover's powders. He says that during the whole illness there was marked recurvation of the nucha, with tenderness: and that since her discharge she still complained of pain about the spine and of stiffness.) She had had no communication with Agnes Gray, and the accident-ward was in a separate portion of the building.

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Dr. Brown  
and  
Mr. Atkinson.



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Dr. Brown.

III.—Dr. Brown also met with two cases of fatal Idiopathic Tetanus in March and July 1865.

Case 6.—A. Sage, æt. 27, residing at Borstal,  $1\frac{1}{2}$  miles from Rochester, having old ulcers on the legs, was seized March 25th, 1865, without assignable cause, with symptoms of tetanus, was admitted into St. Bartholomew's Hospital March 28th, and died on the 29th.

Case 7.—Occurred in the practice of Dr. John D. Brown. A Labourer, æt. 59, residing in Delce Lane, Rochester, a place of bad hygienic conditions, was seized July 17, 1865, with trismus. He had lain out of doors at night, drunk, a short time previously. Opisthotonos set in July 21st, and for days he was curved on occiput and heels. He died July 30.

Dr. F. J. Brown says that in the practice of several surgeons at Chatham and Rochester there were in the summer of 1865 numerous cases of persistent vertigo, with headache and pains in the nucha. He also reports that there had been several cases of congestion of the spine in its dorsal and lumbar portions : two of them threatening paraplegia.

Dr. Clapton.

(b.) From DR. CLAPTON, Assistant Physician of ST. THOMAS'S HOSPITAL, Oct. 24th, 1865.

I have endeavoured to call to mind some of the cases of cerebro-spinal meningitis which have fallen under my immediate observation. In no instance did it occur idiopathically, but as a complication, usually fatal, during the progress of some zymotic affection.

Of course I speak of those cases in which the meningitis was well marked ; but for a period of at least two years I have noticed that very many diseases have been complicated with peculiar cerebro-spinal symptoms, such as I used not formerly to observe ; and, in conversation with other medical men in the course of my practice, I have not unfrequently heard confirmatory remarks as to increasing tendency of diseases (principally exanthematous) to take on this peculiar type.

The following are a few of the cases the particulars of which I distinctly remember :—

Case 1.—A child, aged 4, at Clapham Common, was attended by Dr. West, Mr. Taylor, and myself. Had a most severe attack of scarlet fever in February last. Became very delirious on the 15th day after the first appearance of the rash. Up to this time was not thought to be in danger. No albuminuria ; no typhoid condition ; no throat mischief. The delirium was attended with vomiting and much general excitement. In the course of the following day distinct and violent tetanic convulsions with opisthotonos occurred, in one of which the little girl died in my presence.

Case 2.—A boy, æt. 12, at Blackheath, attended by Dr. Farre and myself (about a year ago). He was just recovering, seemingly without a single bad sign, from a mild attack of scarlet fever, when he was suddenly seized (about the 12th day) with intense headache, strabismus, and violent vomiting. These symptoms were speedily followed by general convulsions, which lasted a considerable time, and were succeeded by more or less unconsciousness, irregularity of pupils, retraction of head, slow and very irregular pulse, and hard and tense abdominal muscles. He unexpectedly recovered. There was only a trace of albumen in the urine throughout the entire illness. He has been subject ever since to headache, flushing of the face after the slightest excitement, and an irregular and intermitting pulse.

Case 3.—A lady at New Cross, recently attended by Dr. Downing and myself. She was just recovering from a very mild attack of scarlet fever (which occurred a few weeks after confinement) when she was seized with violent maniacal delirium, vomiting, and occasional paroxysms of tetanic convulsions. No febrile symptoms or dyspnoea. Face very pale; eyes fixed; pupils contracted. Constipation, and retention of urine. When I last saw her (about a fortnight ago) I did not think she would recover, but I have heard to-day that she is still living, but, although in other respects well, there has been no cessation of her maniacal state.

Case 4.—A boy at Brixton, whom I saw about a year ago, but only once in consultation. He was then delirious, and I was since informed died the same night in an attack of opisthotonos.

Case 5.—A railway porter's child, aged 5, was brought to me from Bermondsey. He was then affected with whooping-cough, but was brought in consequence of the head being drawn back, difficulty of swallowing, and occasional convulsions. The muscles of the neck were rigid, pupils contracted, and the limbs constantly drawn up in a jerking spasmodic manner. The little boy was very listless, but not unconscious. He died two days after, but I did not see him. From the symptoms as described I have little doubt that he suffered from active cerebro-spinal meningitis.

Dr. Clapton has since (Jan. 8th, 1866) written further :—I inquired of several members of the West Kent Medico-Chirurgical Society, at one of their meetings, whether any cases of this disease were at that time under their care. I found that Dr. Mitchell of New Cross had two such cases, and I gained permission to see one of them with him the same evening. It was characterized by symptoms which left no doubt as to its nature. The patient died the next morning. Dr. Mitchell has since kindly supplied me with the brief notes of the cases which he took at the time. They are the following :—

Mrs. C., Deptford, age about 34. Was confined early in the morning of the 4th November 1865, and had some hæmorrhage from retained placenta. On the 9th complained of very stiff neck, and inability to swallow: no tenderness: not worse in other respects: vomiting once or twice. 10th. Trismus: total inability to swallow: head drawn back: abdominal muscles tense. 11th. Became much worse at 4 a.m. Convulsions: back completely arched: mouth tightly closed: toes drawn toward the soles of feet: thighs bent on to abdomen. Died at 7.40 a.m. No post-mortem allowed.

The second case was that of a young girl at Greenwich, who was just recovering from scarlet fever. There was more or less opisthotonos for 8 days, with occasional convulsions. The patient recovered, but has had strabismus ever since, and her intellect has been decidedly impaired.

I have lately had 2 cases of idiopathic trismus; one at the hospital, and one which I saw with Dr. Pocock at Brixton; but I do not think they had reference to the disease in question, although of unusual occurrence.

## APPENDIX.

## No. 13.—REPORT by Mr. JOHN NETTEN RADCLIFFE on the SOURCES and DEVELOPMENT of the present Diffusion of CHOLERA in EUROPE.

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

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## I. Origin of the Epidemic.

## § 1.

At the beginning of March 1865 two British vessels, the “North Wind” and the “Persia,” arrived at Jedda,\* from Singapore, freighted with pilgrims, chiefly Javanese, for Mecca. These vessels on their voyage had touched at Makalla,† on the south coast of Arabia. Cholera, it is asserted, was prevailing there at the time. The crews and passengers (who, while in the port, indulged immoderately in an unwholesome kind of fish) contracted the disease. The epidemic raged fearfully among them for some days after the ships had again put to sea. Its extension was favoured by a prevalence of calms and fair winds, which prevented the efficient ventilation of the between-decks. The outbreak ceased suddenly when the vessels arrived opposite Sit (about 100 miles south of Jedda) and met with the strong northerly winds constantly blowing in the Red Sea at that time of the year.

These facts are stated on the authority of Mr. Henry H. Calvert, then Her Majesty’s Acting Consul for Jedda, upon information received from the masters of the two ships.‡

\* Jedda, or Jiddah, on the Red Sea, the principal trading port of Arabia, 45 miles W. of Mecca. Stationary population estimated at 22,000.

† Makalla, a seaport, 280 miles E.N.E. of Aden. Population about 4,500.

‡ Despatches, 10th March 1865 and 12th May 1865.

The following is a tabular statement of the mortality on board the “North Wind” and “Persia.” The number of the passengers is probably understated; the masters having only declared the number permitted by law :—

Name of Vessel, Official No., Port of Registry, and Name of Master.	Crew.		Passengers.		Original Number of Crew and Passengers.	Total Deaths among Crew and Passengers.	Percentage of mortality among Crews and Passengers.	REMARKS.
	Original Number.	Deaths.	Original Number.	Deaths.				
“North Wind,” 44,009; Singapore; Thos. Steauber - - -	59	7	573	43	632	52	8½	The passengers were nearly all Javanese pil- grims.
“Persia,” 40,557; Singapore; Augs. Schwalky - - -	37	8	493	85	530	93	17½	
Totals - -	96	15	1,066	128	1,162	145	Average 12½	



Makalla was not the only Arabian seaport which suffered from cholera early in 1865. The disease, Mr. Calvert states, had been severe at Hodeida, a port on the East coast of the Red Sea, 560 miles S.S.W. of Jeddah, before its appearance at Mecca.

It is greatly to be desired that more definite information should be obtained respecting the reported outbreaks of cholera at Makalla and Hodeida, more particularly as to the periods when the disease prevailed.\* Inquiry should be made also respecting the existence of cholera among the pilgrims from India and the Strait Settlements previous to their reaching the Arabian coast.

It may not be impertinent to suggest that the whole of the circumstances connected with the transit of Mohammedan pilgrims from British dependencies in the East to Jedda require investigation. The conditions under which the voyage is undertaken have probably a more important relation to recurring outbreaks of cholera in Arabia than is yet understood. The French and Dutch authorities in the East do not permit their Mohammedan subjects to resort to Mecca, unless satisfied that they have the means to go and return. No restrictions are placed upon British subjects, and many undertake the pilgrimage without sufficient resources for the journey. These suffer the severest privations, and frequently become outcasts in the streets of Jedda.†

It is not known whether the pilgrims from Singapore, or any portion of them, proceeded at once to Mecca after reaching Jedda, or whether they remained in the latter town until the near approach of the days set apart for the duties of the pilgrimage.‡ The assemblage of pilgrims in the valley of Arafat occurred in 1865 on the 2nd May, and the rites enjoined to be performed on the mountain would be carried out the day following. The pilgrim who is too late for the sermon on Mount Arafat loses his labour for that festival irretrievably. Late in April, information appears to have reached the Egyptian Government of an unusual mortality among the pilgrims congregated at Mecca. The last days of the religious observances there, according to Dr. Colucci-Bey, are

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\* An official despatch received from Constantinople after the completion of this report, and as it was about to pass through the press, states, as the result of an investigation made by the Turkish Government into the origin of the epidemic, that the disease did not exist in Mecca before the arrival of the Javanese pilgrims, and that it was imported into that city and into several places on the East coast of the Red Sea, by them. (See *Postscript*, Appendix II.)

† See on this subject, and certain asserted grave abuses connected with the transit of pilgrims, Allen's Indian Mail, 19th February 1862, also Captain Burton's Personal Narrative of a Pilgrimage to El Medinah and Mecca, Vol. III., p. 254-56, and note. Captain Burton remarks: "As no Moslem, except the Maliki, is bound, to pilgrimage without a sum sufficient to support himself and family, all who embark at the different ports of India should be obliged to prove their solvency before being provided with a permit. Arrived at Jeddah, they should present the certificate at the British Vice-Consulate, where they would become entitled to assistance in case of necessity.

"The Vice-Consul at Jeddah ought also to be instructed to assist our Indian pilgrims. Mr. Cole (now holding that appointment) informed me that though men die of starvation in the streets he is unable to relieve them. The streets of Meccah abound in pathetic Indian beggars, who affect lank bodies, shrinking frames, whining voices, and all the circumstances of misery, because it supports them in idleness." (Vol. II., p. 256, note.)

‡ Pilgrims from India, who make the voyage to Jedda by sailing vessels, and have to time their departure by the monsoons, prefer being several months too early to being one day too late for the sacred duties of the pilgrimage, when they would be morally bound to remain in the Mohammedan Holy Land until the following year's festival. In 1814, according to Burckhardt, 4,000 pilgrims had arrived in Mecca three or four months before the time set apart for the pilgrimage. (*Travels in Arabia*, Vol. II., p. 34.)

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invariably signalized by an increase of mortality among the pilgrims. This he attributes partly to climatic influences, against which they are insufficiently protected by dress; partly to certain insanitary conditions peculiar to the duties of the pilgrimage, especially excessive fatigue, and the unwholesome emanations produced by the great number of sacrifices of animals in the valley of Mina on the most solemn day of the festival.\* To these causes should be added the foul state of the city and vicinity during the stay of the pilgrims there, and the great privations from which the poorer pilgrims suffer. (See Appendix A.)

The mortality among the pilgrims in 1865 having been reported to be greater than in former years, the Egyptian Sanitary Board sent a medical commission to Mecca to investigate the causes of this unwonted fatality. Journeying by way of Jedda, the commission found in the hospital† there many sick who had been attacked with cholera, but who were recovering. Others had succumbed to the disease previous to the arrival of the commission.

At Mecca cholera prevailed. Numerous cases “avaient été constatés soit par des malades, soit par des cadavres.”‡

On receiving a report to this effect, the Sanitary Board, believing, as the result of long experience, that cholera is always developed in Egypt in the train of pilgrim caravans, adopted measures to subject the pilgrims returning westward from Mecca to “a quarantine of observation” before their entry into Egypt, if cholera should be found to exist among them. Further, the Sanitary Board§ took steps to limit the sojourn of pilgrims passing through Lower Egypt to the shortest space, and to prevent their communication as much as practicable with the country. To effect the latter objects, arrangements were made to forward these pilgrims on arriving at Suez by express trains to Alexandria, and there send them directly on board steamboats for their ultimate destination.

Reports furnished to the Sanitary Board by medical men at the different stations through which the pilgrims passed on their return journey from Mecca to Jedda stated that from the time of leaving Mecca, the pilgrims had excellent health. Hence the proposed detention and subjection of the pilgrims to observation was not carried out.

The medical men entrusted with the examination of the pilgrims at Suez, Cairo, and Alexandria were unanimous in declaring that they had been unable to detect any indications of cholera among them. They reported that the pilgrims were fatigued, but healthy. The measures of the Sanitary Board for facilitating the passage from Suez to Alexandria, of those traversing Lower Egypt, and hastening their departure from the country, were, however, executed as fully as practicable.‡

The subsequent details will show that the accuracy of the statements made to the Egyptian Sanitary Board is open to great doubt; although probably cholera was not conspicuously present among the pilgrims after they had landed at Suez.

Mr. Calvert, in a letter to Her Majesty's Consul General for Egypt, dated from Jedda, 12th May 1865, states that the mortality among the pilgrims on their way from Mecca to that town was very great. This

\* Consular despatch from Dr. Colucci-Bey, Head of the Sanitary Board, 21st June 1865. To the pilgrim who reaches Mecca by the caravans the whole pilgrimage, Burckhardt says, “is a severe trial of bodily strength, and a continual series of “fatigues and privations.” (Op. cit. Vol. II., p. 30.)

† It is not stated whether the civil or military hospital.

‡ Dr. Colucci-Bey : Despatch, 21st June 1865.

§ Sitting of the 3rd May 1865.

was proved by the fact that the dead were buried in large trenches by the road side, without having undergone the usual washing before interment.\* The returning pilgrims began to enter Jedda on the 10th May. At this time cholera was present at Jedda, although not in a severe form; and a tendency to an extension of the disease was indicated by many persons being seized with vomiting and purging. Seven or eight Europeans, mostly belonging to ships in the harbour, had been attacked with diarrhoea, sickness, and severe gripings, but all recovered, having had a timely recourse to medicine. Several lascars on board Indiamen had been attacked in a similar manner, and some had died. Twelve cases of cholera had been treated in the Turkish military hospital, and three (one having previously been suffering from intermittent fever and diarrhoea) had ended fatally.†

On the 19th of May 1865 the first ship bringing pilgrims from Jedda arrived at Suez. It was an English steam vessel (name not stated) and was crowded with 1,500 of the returning devotees. Several deaths had occurred during the passage from causes unknown, and the bodies had been cast overboard. On the 21st May the captain of this ship and his wife were both attacked with cholera, and were treated by Dr. Papatodor, one of the medical men attached to the Isthmus of Suez Canal Company.‡

On the 22nd May, Dr. Fibich, another medical man in the service of the Suez Canal Company, recognized a case of cholera at Damanhour, 46 miles E.S.E. of Alexandria, and on the line of railway from Suez, among a body of pilgrims coming from the last-named port.§

From the 22nd May to the 1st June numerous pilgrims were landed at Suez, and were sent by rail to Alexandria, where those who could not be immediately embarked on the vessels provided to carry them to their further destination, were encamped outside the city near the canal of Mahmoudieh.

On the 2nd June a case of cholera (the first recognised) occurred among the inhabitants of Alexandria who were in communication with the pilgrims. On the 5th June two other cases occurred under the same circumstances. From this date cases became more numerous, but until the 12th June, according to Dr. Aubert Roche, they were confined to that portion of the population which was brought into contact with the pilgrims.||

The presence of epidemic cholera in Alexandria was officially

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\* In connection with the latter fact it should be mentioned that there was a great scarcity of water. Dr. Tilbury Fox, who visited Egypt during the autumn of 1865, says (*Journal of Social Science*, No. 1., p. 262) "that the scarcity was something unheard of."

† Mr. Calvert to Consul General, 12th May 1865.

‡ Rapport sur le Choléra dans l'Isthme de Suez en Juin et Juillet 1865, par M. Aubert Roche, Médecin en Chef de la Compagnie du Canal de Suez. Paris, 1865, p. 12.

§ Dr. Aubert Roche, op. cit., p. 12.

|| Dr. Colucci-Bey (21st June 1865) states that the earliest cases occurred among the porters and workmen attached to the railway, and that the epidemic first spread in the localities inhabited by them. Mr. Consul Stanley writes (February 17th 1866): "It is true that the first attacked were people in the service of the railway, but it is also true and noticeable that these people lived on the banks of the Mahmoudieh Canal after it had passed through most parts of the town, and close to where it empties itself by sluice gates into the sea, and that the disease raged more fearfully there than in any part of the town."



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reported on the 11th June, and between that date and the 14th foul bills of health were issued to vessels leaving the port.\*

## § 2.

The foregoing is a recital of the facts, as yet known, relating to the origin of the present epidemic. There is no trustworthy information respecting the extent to which cholera prevailed at Mecca. The severity of the disease is indicated by a statement made by Mr. Calvert,† namely, that most of the pilgrims who had intended visiting Medina (which is not a compulsory duty) on their return from Mecca, had panic-stricken given up the journey.‡

The circumstances already detailed appear to show that cholera was present at two points of the Arabian coast, and among pilgrims from the Strait Settlements before its appearance at Mecca. Dr. Colucci-Bey, in a report presented to the Egyptian Minister for Foreign Affairs, in August 1865, is of opinion that the outbreak of the disease at Mecca was determined by the unwholesome conditions under which the pilgrims were placed.§ He estimates the number of pilgrims who annually congregate in the sacred city at from 700,000 to 800,000. These people are crowded together in confined districts. Lightly clad, they are exposed to the burning sun by day and to heavy and cold dews by night. Many are exhausted by fatigue, and suffer from the severest privations. The camps presently become vast diffused cesspools. The dead, always a goodly number, are barely covered out of sight beneath the sand, and rapidly decomposing add to the foulness of the atmosphere, which is still further polluted by the putrefying offal of the numerous animals sacrificed on the last day of the religious observances.

Dr. Colucci-Bey's estimate of the number of pilgrims who annually assemble together at Mecca is, no doubt, exaggerated, if, indeed, a graphical or typographical error has not occurred in his report, and 700,000 or 800,000 been written or printed for 70,000 or 80,000. Mr. Calvert states, that an unusually large number of pilgrims were attracted to Mecca in 1865 in consequence of that year being a jubilee year. Those who arrived at Jedda from Suez, India, the Strait Settlements, Java, &c., he estimated at between 50,000 and 52,000. The caravans from the north and from various parts of Arabia, with four fifths of the inhabitants of Jedda and of Mecca, contributed, perhaps, 40,000 more. There may, therefore, he thinks, have been probably about 90,000 human beings engaged in performing the rites of the pilgrimage.||

\* Telegram from Consul General, dated 14th June 1865. The precise date when foul bills of health were first issued is not given.

† Mr. Calvert to Consul General, 12th May 1865.

‡ H.M.'s Consul for Damascus (10th July 1865) states that one third of the pilgrims are estimated to have succumbed to cholera, exposure, and want, and that more than two thirds of the camels died. The Syrian caravan costs the Turkish Government about 10,000 purses (40,000*l.*) annually.

§ In a pamphlet entitled "*Réponses à Douze Questions sur le Choléra de 1865 en Egypte.*"—Alexandrie, 1866, Dr. Colucci-Bey assumes the importation of the disease from India.

|| After many calculations Captain Burton estimated the number of pilgrims in the plain of Arafat, in 1853, to be not less than 50,000. Of these at least 10,000 were Meccans, as every one who can leave the city does so at pilgrimage time. Ali Bey calculated 83,000 pilgrims in 1807; Burckhardt, 70,000 in 1814. In 1854, owing to political causes, the number fell to about 25,000. (Burton's *Personal Narrative*, Vol. III., p. 259, and note.) Ludovicus Vertomannus, who visited Mecca and Medina, A.D. 1503, estimated the Damascus caravan to consist of 40,000 men and 35,000 camels. On this estimate Captain Burton remarks: "The number of pilgrims in this caravan is still grossly exaggerated. I cannot believe that it contains more than 7,000 of both sexes and all ages." (Vol. II. App. 2, p. 348, note.)

The conditions under which the religious ceremonies at Mecca are carried out would appear to be very similar to those which obtain during the great Hindoo pilgrimages, excepting only the sacrifice of animals. There is a like crowding together of an immense mass of people in a limited space ; a like insufficiency of dress and absence of protection from the sun and from the night air ; a like exposure to fatigue and privation ; a like utter and indescribable foulness of the soil of the sacred locality, and frightful pollution of the atmosphere by the exhalations from the filth of the pilgrims and putrefying corpses.

Probably there is no influence so powerful in developing and disseminating epidemic cholera in India as the Hindoo pilgrimages or religious fairs. Their evil effect in this respect is believed to be on the increase, greater facilities of travel leading to a larger concourse of pilgrims at the holy spots. The hygienic regulation of the pilgrimages in reference to cholera is one of the most important questions with which the Sanitary Commissions of the different Presidencies have to deal. The proceedings of the Commissions of the Bombay and Madras Presidencies furnish instructive information concerning the measures requisite for the sanitary control of the crowds of devotees, and the purification of the sacred places. As this information is not without practical interest in reference to the Mohammedan pilgrimage to Mecca, I have added a memorandum on the subject. (*See Appendix B.*)

In tracing the origin of the present epidemic, the following facts require to be noted :—

The vessels which arrived at Jedda in March, and of which the pilgrim passengers had suffered much from cholera, had sailed from Singapore. Since 1862 epidemic cholera has prevailed more or less in China, Cochin China, and the Eastern Archipelago. Information as to the recent prevalence of cholera in this part of the globe is as yet very imperfect. Dr. Mackay, of the Admiralty, tells me that the disease was prevailing amongst the Malayan population of Singapore in the Midsummer quarter of 1865, and that in the March quarter of the same year it was present in Penang.

Prior to, or contemporaneously with, the prevalence of cholera at Makalla and Hodeida, the disease broke out in an epidemic form in the Bombay Presidency. The malady raged severely at Mhypee Fair in Khandeish in February and March 1865.\* Early in April it is reported to have been prevailing in the native towns of Bombay and about Poona.† Among the British forces the epidemic manifested itself in April. It attacked many of the stations, and the outbreak did not finally cease until August. Although the epidemic was general, the disease was not virulent, owing, it is thought, to the judicious and timely measures adopted to arrest its progress.‡

In May, epidemic cholera was present at Aden, and subsequently the disease broke out in the province of Lahej.§

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\* Proceedings of the Bombay Sanitary Commission, 23rd June 1865.

† Principal Medical Officer, Bombay Army, Mahabeshwar, 11th April 1865.

‡ P. M. O., Poona, 8th June and 22nd August 1865.

Admissions into Hospital, and Deaths from Cholera, European Troops,

Bombay Presidency :—

	Admissions.	Deaths.
1860 - - - - -	181	105
1861 - - - - -	48	35
1862 - - - - -	78	55
1863 - - - - -	12	8
1864 - - - - -	71	34
1865, first seven months - - -	268	147

§ Army Medical Returns. Despatch of Political Resident, 17th June 1865.

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It is not improbable that early in 1865 cholera was prevailing on the East Coast of Africa. Her Majesty's Ship "Penguin," while cruising off the East Coast of Africa and in the Gulf of Aden, endeavouring to intercept slave dhows running north with the south-west monsoon, captured two full of slaves, one on the 15th April 1865, the other on the 12th May. While conveying the dhows to Aden a considerable number of the slaves died, all suffering from the same symptoms. "They all complained of severe griping pains in the bowels, accompanied with vomiting, and in most cases violent purging, the stools being watery and of a yellowish colour. The surface of the body rapidly became cold and clammy, the features pinched, and the countenance expressive of great suffering, the pulse being very small and weak. All suffered from insatiable thirst. Most of those attacked by the disease died very rapidly, many being only a few hours ill. Two fatal cases occurred amongst the ship's company during the cruise to the northwards. One died on the 17th April, the other on the 16th of May. In both cases the symptoms were precisely similar to those of epidemic cholera. In both there was extreme looseness of the bowels, with vomiting; the surface of the body cold, features livid and shrunken, and the pulse almost imperceptible from an early stage of the disease. There were also violent cramps of the abdomen and lower extremities. Both cases proved rapidly fatal, the first terminating in twenty and the second in eight hours. The patients did not complain of any previous illness."<sup>\*</sup>

Finally, Her Majesty's Consul-General at Bagdad, in a letter, dated the 14th November 1865, states that prior to the appearance of cholera in that city in September the disease had prevailed along the coast of Mekran, "the stream of infection coming from Kurrachee" and extending to Port Lingah,<sup>†</sup> on the Northern shore of the Persian Gulf. The epidemic was rife in Bunder Abbas and Muscat, on the opposite coasts of the Gulf, at the same time, and it spread along the Southern shore to Bassorah, and then ascended the Euphrates as far as Hillah before attacking Bagdad.

In the absence of dates it is impossible to state what relation the prevalence of cholera on the coast of Mekran has either to the outbreak of the disease in an epidemic form in the Bombay Presidency, or to its appearance on the East, South, and West coasts of Arabia.

Returns furnished to the Army Medical Department show that epidemic cholera was present among the troops at Kurrachee in April and May 1865;<sup>‡</sup> that is subsequently to the appearance of the disease at Makalla, Hodeida, and Jedda.

This portion of the history of the present epidemic must remain imperfect until the chronology of the different outbreaks is more complete.

The prevalence of epidemic cholera in the Bombay Presidency contemporaneously with the presence of the disease in the South of Persia and Arabia, and its extension into Egypt, and (as will subsequently be seen) Asia Minor, Southern and Western Europe, is a fact of great interest.

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<sup>\*</sup> Report to Navy Medical Department.

<sup>†</sup> Query, Lingar of the Index Geographicus. Lat. 26° 35' N. Long. 54° 56' E.

<sup>‡</sup> During the quarter ending June 30, 1865, 15 cases of epidemic cholera, and 10 deaths occurred in an average strength of 967 men.



## II. *Spread of the Epidemic.*

### § 1.

On the 11th of June 1865 the existence of epidemic cholera in Alexandria was officially recognized, and between that date and the 14th vessels leaving the port carried foul bills of health. Before the close of the month the disease had broken out in an epidemic form in Cairo, the principal towns on the delta of the Nile (Damietta, Rosetta, Tanta, &c.) several villages on the Isthmus of Suez, and extended to Minieh, Middle Egypt. On the 20th of the same month cholera appeared at Valetta (Malta) on the 24th at Smyrna, and on the 28th at Constantinople.

At the beginning of July the epidemic showed itself almost contemporaneously in Jaffa and Beyrout, on the East coast of the Mediterranean, in Valencia on the West, and in Ancona on the Italian shore of the Adriatic. The town of Dardanelles would appear to have been attacked about the same time. On the 19th of July the first case of cholera occurred at Gibraltar, and on the 22nd in Barcelona. The disease was officially recognized as present in Marseille on the 23rd of the month; and it appeared at San Severo, in the Capitanata (South Italy) on the 25th. Towards the close of July, Cyprus was infected, and several cases of the epidemic occurred at Delos.

During the first week of August cholera broke out at Damascus, Trebizond, Kustendji, Sulina, and Tultcha (on the Danube). On the 6th the epidemic appeared at Odessa, and on or about the 11th at Aleppo. Kertch was attacked on the 17th. About the same time the disease showed itself at Madrid, Palma (Balearic Isles) and Brusa, extended (so far as can be determined by accessible data) to Reni, Brailov, and other towns of the Danubian principalities, attacked Toulon, and spread widely in the Capitanata. During the month the epidemic was probably also prevalent in the Caucasus.

At the beginning of September the pestilence appeared at Alicante and Seville, and widened largely its area of prevalence in Spain, Southern France, and Italy. About the middle of the month it broke out in Paris and Bagdad; and on the 24th a death from the disease was registered at Southampton, the attack dating from the 17th. From the 24th to the 29th scattered cases occurred in Algiers and Prosecco (near Trieste) while an isolated and somewhat severe irruption took place at Altenburg in Germany (24 miles south of Leipzig), and a singularly virulent group of cases occurred at Theydon-Bois (Epping) Essex. On the 27th, Berditchev, in the government of Kiev, Russian Poland, was attacked by the epidemic; and on the 28th San Giovanni a Teduccio, in the vicinity of Naples.

Early in October cholera manifested itself in Kherson and Jerusalem, and several cases of the disease were reported at Elvas and Oporto. During the first week of the month, Naples came under the influence of the epidemic. On the 12th it appeared at Taganrog, on the sea of Azov; on the 20th at Guadeloupe, one of the Leeward Islands; on the 23rd at Mosul, on the Tigris, 216 miles N.N.W. of Bagdad; and on the 26th, in a slight form, at Filurina, in the district of Monastir, European Turkey. In the course of the month the disease spread in the Russian provinces of Kiev, Podolia, and Vollynia.

On the 3rd of November a steam vessel from London, viâ Havre, carrying passengers, reached New York harbour, with several cases of cholera on board.

In December the malady was still prevalent in the south-western provinces of European Russia, and in some parts of France and of Saxony conterminous with the Bavarian frontier.

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The following is a summary of the dates when the epidemic first appeared in the more important localities, so far as these are known :—

June	2nd.	Alexandria (officially recognised 11th).
"	17th.	Cairo,
"	20th.	Malta.
"	24th.	Smyrna.
"	28th.	Constantinople.
July	1st.	Jaffa.
"	"	Beyrout.
"	"	Valencia (beginning of the month).
"	8th.	Ancona.
"	19th.	Gibraltar.
"	22nd.	Barcelona.
"	23rd.	Marseille (officially recognized).
"	25th.	San Severo (South Italy).
"	28th.	Borchi, district of Balta, government of Podolia (Russia).
August	1st.	Damascus.
"	"	Sulina.
"	2nd.	Trebizond.
"	5th.	Kustendji.
"	6th.	Odessa.
"	"	Tultcha (Danube, prior to 8th).
"	11th.	Aleppo (officially declared).
"	15th.	(?) Madrid.
"	16th.	Brusa,
"	17th.	Kertch.
"	26th.	(?) Toulon.
"	"	Palma (about this date).
September	Alicante Seville	} (beginning of month).
"	11th.	San Roque.
"	12th.	Acqui
"	"	Melazzi
"	17th.	Southampton (first death 24th).
"	18th.	Puteaux (near Paris).
"	24th.	Algiers.
"	25th.	Bagdad (earliest recorded deaths).
"	26th.	Theydon-Bois, Essex.
"	27th.	Berditchev (government of Kiev).
"	28th.	San Giovanni a Teduccio near Naples.
"	29th.	Prosecco (near Trieste).
October	1st.	Novomirgorod, &c. government of Kherson (Russia).
"	"	Jerusalem
"	"	Elvas
"	"	Oporto
"	6th.	Naples.
"	12th.	Taganrog.
"	20th.	Guadeloupe.
"	26th.	Filurina (Monastir).

November 3rd. Ship "Atalanta," from London, via Havre, entered New York Harbour with cases of cholera on board.

## § 2.

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The circumstances under which the earliest cases of cholera occurred in several of the centres of epidemic prevalence, subsequently to the outbreak at Alexandria, have been reported more or less fully. These I proceed to recapitulate.

*Malta.*—Assistant Surgeon Comyn, R.A.,\* reports that on the 22nd June 1865 he was summoned by Dr. Ross, of the 8th King's Regiment, to the Lazaretto Island (Valetta), where the latter had been in attendance on the sick of some families of the detachment of Royal Artillery quartered in the "Plague Hospital" there. Dr. Ross stated to Mr. Comyn that a child eight years old had been seized (20th June) in the Artillery quarters with cramps, diarrhœa, and vomiting, and that it had died after eight hours' illness.

The quarters at the "Plague Hospital" are situated between two burial grounds, and are surrounded by a wall fifteen feet high. They are close, ill-drained, and near to the stagnant foul-smelling shore of the creek. The inmates had been affected more or less with diarrhœa "for some time previously." Mr. Comyn found at the time of his visit a woman suffering from severe symptoms developed seven hours previously. She was "senseless, cold in the extremities, had diarrhœa, vomiting, cramps, and in short every evidence of blood-poisoning." She died in 18 hours.

The day following another woman, the mother of the child first attacked, was seized with similar symptoms. She lived three days.

Four days afterwards (27th June) a second child died with choleraic symptoms. During the night of the 27th–28th a workman (a civilian) who had been employed in lime-washing some rooms at the "Plague Hospital" was attacked with cholera at Casal Attard. He died on the 29th.†

On the 1st July the detachment of artillery was removed to the Salvatore Counter Guard, beyond Floriana Parade, and near the Hay Wharf.

The same day five women were struck down; three with decided cholera. The nature of two of the cases was doubtful. Of the three marked cases one died in 26 hours.

On the 3rd of July a woman who had attended the last-mentioned fatal case, but who had not lived at the "Plague Hospital," was seized with cholera, after neglected diarrhœa of three days' standing. She lived five days. The same day the first case took place among the civil population of Valetta.†

On the 6th July four cases were reported among the garrison; and from this date the disease gradually extended over the entire island.

On the 31st May a British steam vessel arrived in the harbour of Valetta, from Alexandria, with upwards of 200 Mecca pilgrims on board, and was admitted to pratique. The next day she sailed for Tunis, leaving 61 of the pilgrims at Malta. From the 1st to the 14th of June inclusive, 16 steamers from Alexandria touched at Valetta, and several landed passengers. Some of these vessels also carried pilgrims, returning homewards from Mecca. On the 14th the first news of cholera having broken out at Alexandria reached Malta. On the evening of the same day the first vessel from Alexandria was subjected to a seven days' quarantine. Among the passengers were 11 pilgrims, and during the voyage a pilgrim had died of bowel complaint. On the 17th and 19th two steamers arrived from Alexandria. On the

\* Report to P. M. O., July 1865.

† Report of the Superintendent and Chief Physician of Police, 5th April 1866.



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20th the "Rhône," a steam vessel from the same port, entered the harbour, with 147 passengers for Malta; and the master reported that a passenger and a fireman had died of cholera during the voyage. On the 20th June (the day when the first case of cholera occurred in the artillery quarters at the "Plague Hospital") the number of persons detained in quarantine at the lazaretto amounted to 288, including the persons in charge. The distance between the "Plague Hospital" and the nearest part of the lazaretto to which passengers from Alexandria had access is, in a direct line, 662 feet.

The first case in Gozo took place on the 21st July. A seaman from Malta reached the island on that day, and took up his abode with his sisters. He was seized during the night but recovered. On the 24th four cases occurred. Two of the patients were sisters of the seaman; a third was a relation who had constantly visited the house during his illness and the fourth was a person living in the same village. Two of the four cases proved fatal.\*

*Constantinople.*—Dr. Dickson, the physician to the Embassy, reports† that on the 28th June one case of cholera, and eleven cases of cholera, were admitted into the Naval Hospital, landed from the Ottoman steamer "Mughbiri-Surur,"‡ which had arrived the same day from Alexandria.

On the 2nd July a case of cholera occurred on board the Egyptian steamer "Tanta," arrived from Alexandria.

No other case was recorded until the 8th July. From this date to the 11th, several persons were seized with the disease, chiefly in the neighbourhood of the Naval Hospital and Okmeidan.§ After the 11th the epidemic spread throughout the city.

*Smyrna.*—Mr. Consul Cumberbatch, writing on the 1st July, states that at that time the city and neighbourhood were in perfect health, and that no suspicion of plague or other contagious sickness existed. Two or three cases of suspected cholera had, however, occurred amongst passengers from Alexandria detained in quarantine; and one case of suspected cholera had been reported in the city, the patient being a person who had lately arrived from Alexandria. On account of the latter case foul bills of health were issued to vessels leaving the port.

In an official return of the deaths from cholera, dated the 21st July, the first death is entered under the date 24th June.

*Jaffa.*—Dr. Philip, of Jaffa, in a report to H.M.'s Consul there, gives the following account of the commencement of the epidemic. The first signs appeared on the 1st July. A small Greek vessel arrived on that day from Alexandria, where cholera had been prevailing for some time. The captain of this vessel was seized the same day with vomiting, diarrhoea, cramps, and blueness of skin. A few hours after the attack he died. The next day a Greek, in one of the crowded houses of Jaffa, was seized in a similar fashion, and died the day following. Other individuals were attacked with like symptoms prior to the 4th July, and all died. None of the cases up to this date had come under the observation of Dr. Philip, and none had been examined by a medical man. After the

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\* Report of the Superintendent and Chief Physician of the Police, 5th April 1866.

† 1st August 1865, to the Ambassador.

‡ I am doubtful whether I have deciphered this word correctly. H.M.'s Ambassador to the Porte refers, I presume, to the steamer named in the text, when, on the 29th July, he writes: "Cholera was introduced by the ship which brought the late "Osman Pacha."

§ Dr. Dickson to Consul-General Logie, 11th July 1865.

4th July the epidemic spread from house to house, and from street to street.

*Beyrout*.—H.M.'s Consul-General reports on the 21st June, that a great influx of persons flying from Alexandria had begun, and that a strict quarantine had been established against all ships coming from that city. Two English steamers had arrived with 500 refugees, and the French and English mail steamers brought 200 more. On the 12th July the Consul-General writes: "Since the 1st instant some cases of cholera have existed in the city and environs." Three deaths from the epidemic were recorded on the 11th July and one on the 12th.

*Valencia*.\*—It is asserted that early in July a ship, recently from Alexandria, landed a French passenger at Grao, the seaport of Valencia, and about three miles distant from the city. The Frenchman took up his abode at a boarding-house in the district called "El Barrio de Pescadores,"—the Fishermen's Ward. There he was speedily attacked by cholera, and he died soon afterwards. Other inmates of the house quickly became affected with and fell victims to the epidemic. Residents of adjoining houses, subsequently seized with symptoms characteristic of cholera, were transferred to the general hospital of Valencia. At this institution various patients, labouring under ordinary diseases, were invaded by the malady. The epidemic next spread in the city and environs, but at first not extensively. Early in August the outbreak became more general.

*Ancona*.—The first authenticated case occurred on the 8th July, four days after the arrival of a steamer from Alexandria.† All arrivals from Alexandria were subjected to quarantine prior to the 19th June, in consequence of cases of cholera having been verified in that city. At the date given, a vessel with 38 passengers on board, which had sailed from Alexandria, was undergoing a seven days' quarantine.‡

The following fact is stated by H.M.'s Chargé d'Affaires, Florence, in a letter dated the 15th July 1865: "A woman who arrived from Alexandria at Ancona on the 3rd instant remained at the lazaretto of that place, in conformity with quarantine regulations, for the space of six days. She left the lazaretto on the 9th, was taken ill on the 10th, while travelling towards Pistoia, where she died on the following day with all the known symptoms of Asiatic cholera."§

\* I am chiefly indebted to Dr. Webster, F.R.S., for my knowledge of the progress of the epidemic in Spain. He is intimately acquainted with the towns and districts in which cholera prevailed, and he has kindly collated for me the accounts given of the epidemic in the Spanish Medical Journals.

† H.M.'s Chargé d'Affaires at Florence. Despatch 8th August 1865.

‡ H.M.'s Consul, Ancona. Despatch 19th June.

§ Dr. Webster, F.R.S., has favoured me with the following note:—

"The epidemic is reported (Gazetta Medica Italiana Lombardia,) to have been brought to Ancona by a vessel named 'Principe di Carignano,' which came from Alexandria with 60 passengers and an officer of health. During the voyage, which continued five days, namely, from the 12th to the 17th of June, all on board enjoyed good health. Nevertheless the ship was put into quarantine as a passenger came on board at Messina, who had arrived there from Alexandria by another vessel, in which an individual had died during the voyage. This passenger had suffered from a choleraic attack while in the lazaretto of the former place." Dr. Webster then mentions the case which ended fatally at Pistoia, and adds: "Two persons, who had come from Egypt, were affected with cholera in the lazaretto of Ancona, but recovered; while it is further said that other cases of the malady had occurred near, but outside, the lazaretto, which were, however, considered as sporadic and exceptional."

It is proper to add, that Professor Ghinozzi, who made an official investigation of the outbreak, believes that it would have occurred even if no communication with Alexandria had taken place.

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**Gibraltar.**—The first case occurred during the evening of the 18th July 1865, outside the fortifications. The patient was a private of the 22nd Regiment, a wing of which was encamped on the North Front. The case ended fatally in 14 or 15 hours.

On the 31st July, two other cases occurred in the 22nd regiment. A soldier and a soldier's wife were attacked, and both died after a few hours' illness.

On the 3rd August a corporal of the 15th regiment, in charge of and living in a cottage adjoining the cemetery on the North Front, and his child, were seized with cholera. The latter died in 15 hours.

On the 4th August another case of cholera took place among the garrison; and on the 5th seven cases were reported among the civil population.

The wing of the 22nd regiment, in which cholera was first manifested, had sailed from Malta on the 6th July, and landed at Gibraltar on the 10th of that month.

**Marseille.**—M. Grimaud (de Caux) has made the origin of the epidemic at Marseille a subject of special investigation. He states,\* that numerous deaths had taken place in Marseille, preceded by symptoms which had surprised the attendants, between the 9th June and the date of the first officially declared case of cholera, namely, the 23rd July. These symptoms were,—derangement of the digestive organs; suppression of urine; raucous voice; cyanosis; excessive coldness of the surface. During the night of the 14th–15th June, two men were picked up ill, on the Joliette quay. A pharmacien in the neighbourhood, who saw them, thought that they were attacked with cholera. M. Grimaud considers that the part of the old city overlooking the Joliette quay was the focus of the epidemic.

On the 11th June the steamship "Stella" entered the harbour, having sailed from Alexandria on the 1st of the month. The "Stella" landed 97 passengers, of whom 65 were Algerian pilgrims returning from Mecca, and, according to M. Grimaud, she brought the first news of the existence of cholera at Alexandria (Mecca?)†. On the evening of the 11th June, the "Byzantine" arrived with 55 passengers. She had sailed from Alexandria on the 3rd June, and touched at Malta on her voyage. On the 15th June, the "Syria" arrived, bringing the English Mail and 220 passengers. On the 16th June, the "Saïd" reached the port with 190 passengers, who were sent to Frioul. Then came the "Assyrian" on the 24th, the "Tarifa" on the 28th, &c.

From the 11th to the 16th of June, 562 persons were landed at Marseille from Alexandria, and dispersed in different directions.

The Algerine pilgrims during their stay in Marseille (period not stated) were lodged under canvas in Fort Saint Jean. Sixty-seven pilgrims had sailed from Alexandria in the "Stella," but two had died on the eighth day of the voyage. A third pilgrim died about five hours after landing at Marseille. The death of the latter was attributed, on insufficient evidence, to chronic dysentery. Others of the pilgrims were ndisposed at the time.

**Damascus.**—The first case of cholera occurred on the 1st of August.‡ The Syrian caravan of pilgrims, returning from Mecca, entered the city on the 17th July. The caravan had been medically examined at Mejarib, and as it was certified that the health of the pilgrims was

\* Gazette des Hôpitaux, 17 Octobre 1865.

† The presence of cholera in Alexandria was officially recognized on the 11th June. The first observed case of the disease, according to Dr. Aubert Roche, occurred on the 2d June. (See Sec. I. § 1.)

‡ Mr. Consul Rogers : Despatch 9th August 1865.



good, and that no case of cholera had occurred among them since they had left Mecca 40 days before, they were permitted to enter Damascus without being subjected to quarantine.\*

The following facts, stated by Mr. Consul Rogers,† will give a more correct notion of the probable physical condition of the pilgrims when they reached Damascus :—

“The panic arising from the outbreak of cholera at Mecca was so great, that the officers in command of the Syrian caravan hastily collected their followers, and started for Medina, without making previous arrangements for provisions and water. When the caravan was halfway between Mecca and Medina, a company of pilgrims was sent in advance to seek for a spring of water known to exist. These people missed the track, and when the caravan, which happened to keep in the right path, reached the spring in the evening, to their astonishment no traces of the messengers were found. Scouts were sent out, and during the night some of the missing were discovered dead and some dying. Thirty persons, several of importance, lost their lives from this misadventure. At Medina scarcely any provisions could be obtained. Nine hundred piastres were paid for a measure of barley, and all the camel drivers were utterly ruined. Still the caravan proceeded, hoping to obtain supplies from the Arabs. When the messenger sent forward to announce the approach of the pilgrims started for Damascus, the camels were dying on the road from want and exhaustion. The pasha, on hearing the news, immediately sent camels and provisions for the relief of the caravan.”

*Russia.*—The circumstances attending the appearance of the earliest cases of the epidemic in Russia are thus stated in an official report published in the “Journal de St. Petersburg” for the 14th–26th December 1865.‡

On the 26th July 1865, several German families from Prussia arrived at Borch, a village of the district of Balta in the government of Podolia, to be employed on the railway. They had stayed at Galatz, where cholera was prevailing,§ on the 23rd, and at Odessa on the 24th. All appeared in excellent health when they reached Borch, except an infant belonging to the family of Jans, which was suffering from diarrhoea, and died on the 29th. From this date cholera began to spread among the inhabitants of Borch, the disease also attacking violently, and with all the symptoms of the epidemic malady, the newly arrived Germans. On the 6th August the mother of the infant Jans fell ill, and she died on the morning of the 8th. Shortly after two other infants succumbed. On the 7th August, at 9 a.m., the wife of Glenberg was seized with severe cholera; she died 12 days after, in the typhoid stage

\* Mr. Consul Rogers : Despatch 19th July 1865.

† “ ” 10th July 1865.

‡ Extrait des rapports officiels des autorités locales, reçus au Ministère de l'Intérieur jusqu'au 1er Décembre 1865. (Communication du Directeur du Département Medical Civile.)

§ Her Majesty's Consul at Galatz, in a despatch dated the 8th August 1865, does not make any mention of cholera having then appeared in that town. He reports the occurrence of a few cases of the disease among a detachment of soldiers, recently arrived from Constantinople, at Tultcha, and the subjection of vessels from Constantinople, and passengers coming direct from that city, by way of Tchernovoda, to a three days' quarantine. He first states that cholera had broken out in Galatz, in a despatch dated the 21st August 1865, when he writes of the epidemic having crept into the town in spite of all precautions, and says that the deaths caused by it were estimated at from 10 to 12 daily.

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of the affection. On the 21st, the son of Glenberg was attacked, and he died the same evening. On the 12th, William Exenberg was seized; he recovered after a fortnight's illness. Of eight Germans who suffered from cholera one only escaped.

On the 1st August the disease appeared among the inhabitants of the village. Several persons from Gavinossa, who had attended the church festival at Borchhi on the 25th August, were seized with cholera the same day.

In Borchhi, among a population of 558 souls, 65 cases of cholera occurred, of which 33 died. In Gavinossa, among a population of 444 souls, there were 37 cases and 22 deaths. The epidemic spread to neighbouring localities.

At the commencement of May (2nd, 3rd, 4th, and 5th) four cases of sporadic cholera occurred in Odessa, of which one died. From the 29th July, cases presenting all the symptoms of epidemic cholera were received into the lazaretto of that port from vessels of different kinds, which arrived from Constantinople. On the 6th August the first case of epidemic cholera was recognized in the city. The patient was a customs officer, named Gouline, on duty in the quarantine port. He was attacked suddenly with general prostration, pain in the head, and vomiting. In half an hour after the seizure he was removed to his house, Slobodka Voronzow, near Moldavanka. The same day, in extremity, he was taken to the city hospital, where he expired an hour after admission. Soon after the death of Gouline, his wife, son, and servant were attacked by cholera, and the last-mentioned died.

On the 22nd August, a Jew named Dorfmann, living in Jews' Street, and working also at the quarantine port, was seized with cholera. A comrade, who lived with him, and who attended upon him during his illness, was also attacked. At the same time the porter's wife at the house next to that in which Dorfmann lodged fell ill. On the 23rd her husband was seized, and on the 24th their daughter. Of these cases, Dorfmann alone recovered.

On the 23rd, Borchinsky, a labourer, returning from the quarantine port to his lodging, Ouspenski Street, near the tar stores, was attacked, and he died the morning following. The same day his son, aged two years, and his daughter aged six months, succumbed to the disease. Two days after his widow was attacked, and she died the second day.

In Ouspenski Street, and the suburb Moldavanka, the majority of the cases of cholera in Odessa occurred. Elsewhere in the city the number was insignificant.

*Sulina.*—Dr. Jellinck, the medical officer in charge of the Navigation Hospital, in a report to Major Stokes, R.E., the British Commissioner on the Danube, dated the 17th October 1865, states that on the 30th July a Turkish steam transport arrived in the roadstead of Sulina from Constantinople, having on board a crew for one of the iron-plated gunboats in that harbour. The transport had lost two men from cholera on the passage. The men disembarked were immediately quartered in an isolated house. On the 1st August, Dr. Jellinck was invited by the quarantine doctor to visit these men, and among them he recognized two incontestable cases of cholera, both of which ended fatally the following night. On the morning of the 2nd August, he observed among a group of workmen, who were encamped on the opposite side of the town, about a mile from the lazaretto, a man affected with all the symptoms of cholera. During the afternoon of the same day another case was discovered, the patient being a man

employed in the Lieut.-Governor's office. These cases also proved fatal. From this date the epidemic spread rapidly.

"The manner in which the epidemic established itself," writes Dr. Jellinek, "as described above, shows pretty clearly the uselessness of the quarantine against its extension. The local Health Authorities met the advancing guest in the orthodox manner. They isolated the suspected passengers of the transport, and watched the house in which they were quartered. Notwithstanding, the epidemic broke out at the other end of the town, and among persons who had come from Galatz to Sulina, and who, it was well known, had not been in contact with the cases in quarantine. That the arrival of the Turkish transport was the signal for the outbreak of the epidemic does not admit of contradiction; but even as little can it be doubted, that the measures taken against its spreading did not prevent its breaking out generally. Nevertheless, we were obliged to endure the inconvenience of a complete exclusion; commerce was checked; the navigation suffered enormously; every ship was taxed to no inconsiderable extent for guards, &c.; and the same scene was repeated with the same want of success at Tultcha, Galatz, and Ibralia, whilst the epidemic advanced constantly and attacked places situated in the interior of the river-bordering countries."

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### III.—Prevalence of the Epidemic in different Localities.

#### 1.—EGYPT.

At the time when the epidemic broke out in Lower Egypt the population was suffering from much privation. An excessive inundation of the Nile in each of the two preceding years,\* and the prevalence of a deadly murrain among horned cattle since 1863, had largely diminished the supplies of vegetable and animal food. Lady Duff Gordon, writing from Thebes the 7th February 1865, says: "This is a sad year; all the cattle are dead. The Nile is now as low as it was last July, and the song of the men, watering with the shadoofs, sounds sadly to me as they chant 'Ana ga'án,' &c. 'I am hungry, I am hungry, for a piece of dura bread,' sings one; and the other chimes in 'Meskeen! meskeen!' (poor man! poor man!); or else they sing a song about 'Seyidna 'Eiyooob' (our Lord, Job, and his patience). It is sadly appropriate now, and rings on all sides, as the shadoofs are greatly multiplied, for lack of oxen to turn the sákiyehs (water-wheels). All is terribly dear, and many are sick from sheer weakness, owing to want of food."†

In May 1865 provisions cost more than twice as much as they had done in 1864, and an uncommon prevalence of low fever, with typhoid symptoms,

\* So I read the imperfect information from official and other sources bearing upon this subject. But at the period in question, as will subsequently be seen, famine was prevailing, together with murrain, in South Arabia.

† Letters from Egypt.—I have not been able to obtain any precise information respecting the murrain referred to in the text. *Contagious typhus* (Rinderpest) was prevalent among the herds in Egypt during the four years 1841-44, and it is estimated that in that period no less than 400,000 head of cattle were destroyed. Renault gives some interesting information, from official sources, of the probable connection of this outbreak with the introduction of Russian Steppe cattle into Egypt in the ordinary course of trade. (Typhus contagieux des gros bétail. Le typhus contagieux des bêtes bovines (*pestis bovina* des Italiens, *Rinderpest* des Allemands), peut-il naître spontanément sur les animaux de l'espèce bovine étrangers à la race des Steppes. —Paris, 1856.) See also Professor John Gamgee's work on "The Cattle Plague;" London, 1866, pp. 313-315.



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particularly in the vicinity of Cairo, was attributed to an insufficiency of food among the lower classes.\*

Water also was exceedingly scarce, and the Nile water was very impure, owing to an unusual lowness of the river.† Her Majesty's Consul-General for Egypt thinks that much of the epidemic in Alexandria was due to the stagnant water of the Mahmoudieh Canal, prior to the rise of the Nile.‡ This canal supplies Alexandria; and the pilgrims who were delayed there on their passage homewards, were, according to Dr. Aubert Roche, encamped on its banks. The violence of the outbreak of cholera at Cairo is attributed by Mr. Consul Reade in part to the impurity of the Nile water. § Dr. Tilbury Fox states that "the very places at Cairo whence the common people get their water to drink are impregnated to a very great extent with impurity. Above these spots are large barracks, and a numerous collection of grain and other boats. Now, as I have seen and noticed very particularly, the soldiers and boatmen all crowd to the water edge, and turn the river side into one great cess-pool—in fact, huge watercloset. You see these folk by the dozen in the act of defecation, and this goes on the whole day long."||

The special source of pollution of the Nile here described is common perhaps to every city and village on the banks of the river. I may state, moreover, from an acquaintance with the habits of the natives, that it is also a source of pollution from which wells and springs are apt to suffer. The probable influence of impure water, and especially of water contaminated by the discharges of persons suffering from diarrhoea or cholera, in fostering the epidemic in Egypt, does not appear to have attracted that degree of attention from the medical men practising there which the subject deserves.

The earliest recognized cases of cholera in Egypt occurred at Suez on the 21st May, on board the ship which brought the first detachment of pilgrims from Jedda. On the 2nd June a case of cholera was observed among the population of Alexandria. The epidemic appeared at Tous-soum on the Isthmus of Suez, 150 miles S.S.E. of Alexandria and about 50 miles N.N.W. of Suez, on the 16th of the month, and at Cairo, Tantah (district of Gharbieh, near the centre of the delta) and Aboukir on the 17th. On the 19th the epidemic broke out at Rosetta, and a death from cholera is reported to have occurred the same day at Tel el Kebir, 15 miles E. of Zagazig. The last-named town (district of Sharkieh) was attacked on the 20th June, and the disease appeared in Mansourah (34 miles S.W. of Damietta, district of Dakalieh) about the same date. The first death among the European workmen employed at Suez on M. Lessep's canal, took place on the 22nd, and among the population of the town on the 26th. On the 23rd the disease manifested itself at Ismaïla, a town about midway between Suez and Port Saïd, on the line of the ship-canal. On the 25th Ghizeh (three miles S.W. of Cairo) and Kalioubieh (the district to the N. of Cairo) were invaded. On the 26th the earliest deaths from cholera at Damietta and El Guisr (a village near to and N. of Ismaïla) were recorded. Menouf (30 miles N.N.W. of Cairo) was

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\* Consul General, 12 May 1865.

† Writing in March, Lady Duff Gordon says: "The Nile is now many cubits lower than it was last year at its lowest, three months later.

‡ 23d June 1865; about which date the Nile began to rise.

§ Despatch, 28th June 1865. He mentions also, as exaggerating causes of the epidemic, extreme heat and the consumption of unripe fruit and raw vegetables.

|| The "Lancet," Sept. 2, 1865, p. 274.

attacked on the 29th June ; and the disease broke out at Minieh (136 miles S.S.W. of Cairo) on the 30th.

Thus, in the course of the month, cholera had spread throughout Lower, and invaded Middle, Egypt.

The epidemic appeared at Benisouef (62 miles S.S.W. of Cairo) Middle Egypt, on the 22nd July ; at Kenneh, Upper Egypt, on the 23rd ; and in the course of that month and August it spread widely in the districts of Benisouef, Faioum, and Minieh, Middle Egypt, and Siout, Girgeh, Kenneh, and Esneh, Upper Egypt. Kosseir, on the west coast of the Red Sea, also suffered.

The following is a summary of the dates of first appearance of, or earliest recognized deaths from, the epidemic, in different parts of Egypt :—

Alexandria	- 2nd June.	Ismaila	- 23rd June.
Toussoum	- 16th "	Ghizeh	- 25th "
Cairo	- 17th "	Kalioubieh	- " "
Tantah	- " "	Damietta	- 26th "
Aboukir	- " "	Menouf	- 29th "
Rosetta	- 19th "	Minieh	- 30th "
Zagazig	- 20th "	Benisouef	- 2nd July.
Mansourah	- " "	Kenneh	- 23rd "
Suez	- 22nd "		

A point of considerable interest in the history of the outbreak in Egypt is the appearance of the disease in an epidemic form first at Alexandria.

Cholera prevailed in Egypt in 1831, 1848, 1850, and 1855. Dr. Mackie, acting surgeon to the Consulate, Alexandria, states, in a report to the Consul-General,\* and on the authority of a treatise on the outbreak of 1855, by Dr. Chamas, formerly a member of the Cairo Board of Health, that in all the outbreaks previous to that of 1865 Cairo was attacked before Alexandria and other parts of Egypt. Dr. Mackie, assuming the importation of the disease by the returning pilgrims, thinks that the difference in the recent irruption is explained by the rapidity with which they were transported to Alexandria from Suez, and by the circumstance of the encampment of many of them there, while awaiting embarkation.

The following facts respecting the fatality and duration of the epidemic in Egypt, with the exception of those which refer to the Isthmus of Suez, are given on the authority of Dr. Colucci-Bey.† The figures are approximative only.

#### LOWER EGYPT.

*Alexandria* (estimated population 180,796).—The circumstances attending the commencement of the epidemic have been already stated (Section II.). The presence of the disease was officially recognized on the 11th June, and on the 12th four deaths were registered. The greatest mortality occurred on the 3rd July, when 228 deaths from cholera were recorded, and the outbreak terminated on the 19th August, having persisted 69 days. The total number of deaths from the epidemic was 4,018 (2,263 males and 1,755 females). The average daily mortality was  $57\frac{2}{3}$ . (Appendix III., Table I.)

*Cairo* (estimated population 282,348).—The earliest cases were recorded on the 17th June. They were six in number : five being individuals coming from Suez, one an individual from Alexandria. The outbreak lasted 92 days, ending on the 17th September ; and the total mortality occasioned by it was 6,104 (3,400 males and 2,704 females). The greatest

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† "Réponses à Douze Questions sur le Choléra de 1865 en Egypte."

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daily number of deaths was 468, and occurred on the 5th July. The mean daily mortality was  $65\frac{2}{3}$ . (Appendix III., Table II.)

Mr. Consul Reade\* states, that the average number of deaths daily in Cairo during the last two or three years was about 45. During the period included between the 20th June and 1st July the average daily mortality, from causes other than cholera, was 82.

The following is a statement of the mortality from cholera during four previous outbreaks at Cairo.†

1831.	Greatest number of deaths in one day	-	2,500
	Total deaths	-	55,000
1848.	Greatest number of deaths in one day	-	325
	Total deaths	-	6,620
1850.	Greatest number of deaths in one day	-	212
	Total deaths	-	4,030
1855.	Greatest number of deaths in one day	-	350
	Total deaths	-	6,551

*Ramhlet*.—Total mortality 83 (43 males, 40 females).

*Agiami*.—Total mortality 18 (16 males, 2 females).

*Aboukir*.—Total mortality 23 (13 males, 10 females). The first person seized was a sailor, recently arrived from Alexandria.

*Rosetta* (estimated population 21,130).—The epidemic commenced on the 19th June and ended on the 28th July, lasting 39 days. The greatest daily mortality, 279, occurred on the 29th June, and the total number of deaths was 2,168 (1,069 males and 1,099 females). The average number of deaths daily from cholera was  $54\frac{1}{3}$ .

*Damietta* (estimated population 57,000).—The epidemic persisted 49 days, beginning on the 26th June and ending on the 14th August. The total mortality was 2,374 (1,128 males and 1,246 females), and the greatest number of deaths, 472, took place on the 5th July. The average daily mortality was  $45\frac{2}{3}$ . (Appendix III., Table III.)

The mortality and duration of the epidemic in the different districts of Lower Egypt, exclusive of the places mentioned, are set forth in the following table:—

District.	Mortality from Cholera.	Commencement of Epidemic.	End of Epidemic.	Duration.
Bahireh - - -	2,242	20th June	19th Sept.	91 days
Gharbieh - - -	10,181	" "	12th "	83 days
Dakalieh - - -	7,356	22nd "	3rd August	42 days
Menoufieh - - -	2,648	29th "	12th Sept.	74 days
Sharkieh - - -	3,591	21st "	16th Aug.	56 days
Kalioubieh - - -	699	25th "	5th Sept.	72 days
Ghizeh - - -	1,473	—	—	—

The greatest daily mortality occurred at Mansourah (Dakalieh), 53, on the 7th July; at Tantah (Gharbieh), 96, on the 24th June; and at Zagazig (Sharkieh), 105, on the 27th June.

\* 4th July 1865.

† Consul-General, 18th July 1865.



The first person seized at Tantah by the epidemic was a woman who had lately arrived from Alexandria.

*El Arich.*—Total mortality 35 (males 19, females 16); duration of epidemic 83 days (5th July to 26th September).

*Isthmus of Suez.*—Dr. Aubert Roche, in a report already referred to,\* has furnished a highly interesting account of the prevalence of cholera in the Isthmus of Suez, more especially among the workmen employed in the construction of M. Lessep's canal. The following particulars are derived from this report:—

*Toussoum.*—The first case of cholera in the isthmus occurred in the district (circonscription) of Toussoum. A workman, employed on the earth-works of a sluice on the canal of sweet water, was attacked on the 16th June. At this date cholera was not prevalent either in Zagazig or Suez. For more than a month no new workmen had arrived at the labourers' encampment. The camp is situated in the desert, the surrounding soil being arid and naked, and at the time of the outbreak the sanitary condition of the huts, their appurtenances, and immediate vicinity was unexceptionable. On the 18th June two new cases of cholera occurred, and the disease spread and extended to Serapeum, another encampment in the district. From the 16th June to the 4th July, there were among the Europeans, numbering about 200 persons, 28 cases and 16 deaths. One of the medical men of the company, Dr. Zuridi, succumbed to the epidemic.

Dr. Aubert Roche thinks that the first case in the district of Toussoum merits particular attention. In other districts, and in Alexandria, Tanta, Cairo, and Zagazig, the earliest case could be linked to antecedent cases elsewhere. But it was not possible, he asserts, to trace a direct connection between the first case at Toussoum and previous cases in other localities. Dr. Aubert Roche, however, omits from consideration certain cases of cholera (and probably also of choleraic diarrhœa) which did not end fatally, and which, as he afterwards tells us, had occurred in Suez, between the 19th May, when the first detachment of pilgrims arrived from Jedda, and the 22nd June, the date of the first death from cholera among the Europeans in that city.

*Ismaila.*—The first case of cholera in this district, occurred on the 24th June. The epidemic was then spreading rapidly at Zagazig. Fugitives from that town had sought safety in Ismaila; others had passed through the district in their flight to Port Saïd. Moreover, since the 16th June, cholera had existed at Toussoum, about six miles south of Ismaila.

"If there exists, I will not say in the isthmus," writes Dr. Aubert Roche, "but in the whole world, a salubrious locality, it is Ismaila. I defy the most exacting hygienist to find here an unwholesome cause capable of localising an epidemic."

The disease broke upon Ismaila "as a waterspout." No less than 176 individuals were carried off in seven days. The epidemic lasted 28 days, and during that period there were 352 cases and 228 deaths in a population of about 4,000 souls, rapidly reduced to one half by flight. Among the Europeans, numbering about 2,500, 182 cases occurred and 108 deaths. Among the Arabs and the Government police the mortality was 120 in a population of about 1,500. It was impossible to ascertain the number of cases among the natives of the district.

Dr. Aubert Roche directs attention to the fact that, although the outbreak at Ismaila followed the arrivals of fugitives from Zagazig, outbreaks

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\* "Rapport sur le Choléra dans l'Isthme de Suez en Juin et Juillet 1865." Paris.

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did not occur in the Ouady and at Tel-el-Kébir, in both of which localities (lying on the route from Zagazig to Ismaïla) fugitives from the infected town had taken refuge. Some of the fugitives even died of cholera at Tel-el-Kébir.

During the prevalence of cholera at Ismaïla other maladies disappeared. The sick at the time of the outbreak were carried off by cholera.

*El-Guisr.*—The epidemic extended to El-Guisr, a locality about three miles north-east of Ismaïla, and almost as healthy as the latter place. An Arab was attacked on the 26th June. This was an isolated case. On the 1st July two individuals from Ismaïla were seized. On the 3d July the malady broke out in the encampment. The Arabs suffered chiefly, 20 deaths occurring among them out of 35 attacks. Among the Europeans, there were 15 cases of which 5 died. The disease persisted until the 21st July.

*Kantara.*—This locality, situated from 17 to 20 miles north of El-Guisr, was exempt from the epidemic, although the encampment was exposed perhaps more than any other to the importation of the malady. Kantara is on the route from Egypt to Syria, and it is a halting place for travellers and caravans on account of the sweet water found there. The route also from Ismaïla and El-Guisr to Port Saïd passes through Kantara. When the epidemic broke out in Ismaïla and the vicinity, at least 2,000 workmen fled, some on foot, others in boats to Port Saïd. Of these fugitives, six (four being Europeans) were received into the ambulance at Kantara dying or dead from cholera. In addition, six deaths occurred from cholera among the Syrian caravans. The population of the locality, however, entirely escaped the disease.

*Port Saïd.*—On the 28th June a Greek from Ismaïla suffering with symptoms of cholera arrived at Port Saïd, the Mediterranean termination of M. Lessep's canal. This case recovered. The same day a young Greek girl, living at Port Saïd, after 10 days' diarrhoea, was attacked with cholera and died in the night. At this period the flight of workmen had commenced along the whole line of canal works, the Greeks hastening from Ismaïla where the epidemic prevailed.

On the 3d July there were four deaths from cholera, three among individuals arriving from Ismaïla, and one among the population of Port Saïd. A coffee-house keeper, a robust man, who lodged fugitives at his house, was the victim in the last case. On the 4th three more deaths occurred among the refugees from Ismaïla. On the 5th, a carpenter, an inhabitant of Port Saïd, living near the encampment of fugitives, was seized with cholera, and on the 6th, another seizure took place in the same locality.

At this time about 2,000 Greeks were encamped near the lighthouse awaiting a favourable opportunity for leaving the country. A westerly gale prevented all communication with the shipping for two days; and during this period, notwithstanding every care, the sanitary condition of the encampment was such as to awaken great uneasiness lest cholera should break out in it suddenly as at Ismaïla. But a few isolated cases only occurred.

The disease was present in Port Saïd till the end of July, though sometimes a day, or even two days, would pass without a death, and the deaths in any one day never exceeded six.

The mortality among strangers, chiefly arriving from infected localities, was remarkable. Of the fugitives from the canal works 31 were attacked with cholera and 20 died. Thirteen also died in the boats on the passage to Port Saïd. Of the European population, averaging about 4,500, 63 were attacked and 23 died. The Egyptians enjoyed a singular immunity



from the disease. In the Arab village, having a population of about 1,500, there were but two deaths. Two Arabs coming from the lake were also carried off.

The epidemic at Port Saïd (as also at Ismaïla) chiefly attacked and proved rapidly fatal among persons who were guilty of any kind of excess, and whose constitutions were shattered. Individuals of good physical and moral health who were struck with the disease readily recovered.

Diarrhœa, neglected chronic maladies, insufficient nourishment, and intemperance are stated by Dr. Aubert Roche to have been the determining causes of all the cases among the population of Port Saïd, with two exceptions.

Enteritis and dysentery prevailed at the same time as cholera, and these affections, as well as diarrhœa, proved most rebellious to treatment. Remedies, which prior to the outbreak had acted successfully, failed altogether, and the maladies rapidly ended fatally. Disorders usually of a slight character also became serious.

Port Saïd was in constant communication with Alexandria and Damietta during the time when cholera prevailed extensively in both cities, and it had been invaded by the fugitives from Ismaïla. Numerous cases of the epidemic had been imported into the town, which although not insalubrious was less favourably circumstanced hygienically than Ismaïla, but the disease spread only slightly among the inhabitants. Dr. Aubert Roche was unable to determine the source of this comparative immunity.

*Chalouf*.—Not a single case of cholera occurred in this locality, which lies towards the southern extremity of M. Lessep's canal, at a short distance from Suez, and is traversed by the route from Suez to the more northerly stations on the canal. The population is certainly scanty, but the fact of exemption deserves to be mentioned in conjunction with the like immunity of Kantara and Tel-el-Kébir.

*Suez*.—The earliest cases of the epidemic in Egypt occurred in this city. Two days after the arrival of the ship which brought the first detachment of pilgrims returning from Mecca (21st May) the captain of the vessel and his wife were seized with cholera. After the landing of the pilgrims cholera occurred from time to time among the European workmen of the Canal Company, but no case ended fatally until the 22d June. In the interval between this date and the 21st May, about 20,000 pilgrims had been disembarked at Suez.

Choleraic diarrhœa had prevailed for a good while (pendant longtemps) among the workmen at the sluice which closes the sweet-water canal where it joins the Red Sea, when suddenly, as the epidemic was coming to an end elsewhere, the malady appeared among the Greek labourers. Nine cases occurred in the space of four days, and the outbreak then ceased.

There were 200 European workmen employed by the Canal Company in Suez and the vicinity, and of these 22 were attacked with cholera, and eight died.

Dr. Aubert Roche states that the first fatal case occurred on the 22d June. [The first fatal case in the return appended to his report is entered under the date 23d May. This is probably a misprint.] The last was on the 30th July.

Dr. Colucci-Bey states that the total mortality in Suez itself from cholera was 57 (48 males and 9 females), and that the outbreak among the population of the town lasted 42 days (26th June to 7th August).

At the time when the epidemic appeared in the Isthmus of Suez the works of M. Lessep's canal were in full activity and about 7,000 Europeans were employed upon them. Of these persons 5·1 per cent. were

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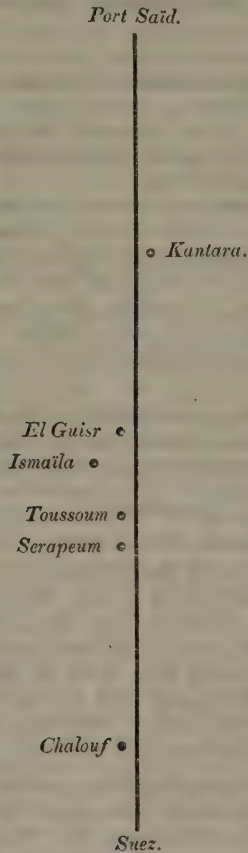
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attacked with cholera, and 2·9 per cent. died. Dr. Aubert Roche states from information furnished to him by the French and British Consuls at Cairo, that in that city the mortality from cholera among French residents was 6·0 per cent., and among English 12·0 per cent.

I add a diagram showing the relative position, on the line of the ship canal, of the places mentioned in the foregoing summary of the prevalence of cholera in the Isthmus of Suez.



## MIDDLE EGYPT.

*Benisouef* (district).—The total mortality from cholera was 1,031 (513 males and 518 females). Dr. Colucci-Bey gives the following account of the commencement of the outbreak. On the 3rd July 1865 a steam-vessel, carrying soldiers from Cairo to Upper Egypt, landed at Benisouef, for interment, the corpses of seven men who had died from cholera. The malady broke out in the town the day following (4th July).

*Faioum* (district).—Total mortality 1,306 (males 718, females 588).

*Minieh* (district).—Total mortality 1,509 (946 males, 820 females). Duration of outbreak 63 days (30th June to 2nd September).

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*Siout* (district).—Total mortality 4,387 (males 2,293 and females 2,094).

*Girgeh* (district).—Total mortality 5,775 (males 2,930 and females 2,845).

*Kenneh* (district).—Total mortality 3,084 (males 1,581 and females 1,503).

*Kosseir and Esneh*.—Total mortality 713 (males 408 and females 305).

The *total ascertained mortality* from the epidemic in the whole of Egypt, according to the official returns furnished by Dr. Colucci-Bey, was as follows :

Males	-	-	-	32,854
Females	-	-	-	28,338
Total	-	-	-	<u>61,192</u>

The estimated population of Egypt on the 26th May 1865 was 4,841,677.

Commencing early in June, the epidemic persisted until late in September. The outbreak was general, affecting the entire country, and taking the returns of deaths simply as they stand, it was very severe. The brunt of the disease fell upon the Mohammedan population, other sections apparently suffering comparatively slightly. The mortuary records show 110 deaths from cholera among the Jews, and 1,978 among Christians, the remainder (59,104) being among the Mohammedans.

## 2.—ARABIA.

Cholera prevailed at Makalla on the south coast, and Hodeida on the west coast, of Arabia before the appearance of the disease at Jedda and Mecca (Sect. I.) Muscat has suffered from the malady, and the coast of Eastern Arabia generally, or at several points. Her Majesty's Consul at Bagdad states that the epidemic prevailed with considerable violence at Muscat on the south, and Bunder Abbas on the north coast of the Persian Gulf, at the same time ; and that it extended to Bassorah along the Arabian shore of the gulf.\* Information is still wanted respecting the date when cholera broke out at Muscat and the period of its prevalence there ; also in reference to the localities attacked by the epidemic and times of its appearance on the southern shore of the Persian Gulf.

The facts known relating to the prevalence of cholera at Jedda and Mecca have been already detailed (Sect. I.) The only other locality in Arabia, touched by the epidemic, from which information is forthcoming, is Aden.

*Aden*.—Returns forwarded to the Army Medical Department show that prior to the 31st May 1865, 23 cases of cholera occurred among the troops stationed at Aden, of which 14 died. From that date to the 23rd July 9 cases occurred, of which 7 died, making a total of 32 cases and 21 deaths, the average strength of the garrison being 726.

When the disease first declared itself at Aden, either among the troops or the native population, is not yet known. The political resident, in a letter to the Secretary of State for India, dated 17th June 1865, reports : That the epidemic was not confined to any particular part of the town, nor were the cases numerous. The fatal instances amongst the natives were confined almost entirely to the very poor classes, those who to avoid

\* Despatch, 14th Nov. 1865.

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starvation in the interior, had come into Aden to get work and food. Some cases having appeared at the Towaaie, a temporary hospital was erected in rear of the European General Hospital, to which any of the coolie class suffering from the disease were ordered to be at once taken and treated. The epidemic passed from the peninsula into the interior and "raged badly" at Lahej. Upwards of 500 people are said to have died there. The whole district of Lahej and the country immediately adjacent to Aden was, at the time of the outbreak, in a melancholy state from excessive poverty. The disease was in extreme force only for a few days.

To add to the misery then existing, the country had been visited with a murrain which had carried off almost every head of horned cattle. Many of the people had renewed their stock several times over, and their resources were exhausted. The supply of grain in Lahej failed, and the poor inhabitants flocked to Aden and drew upon its very limited store. Whatever grain there was came from the hilly country, and was ruinously dear. Reports from Zemen spoke of famine there also, and the populations of Mocha and Hodeida looked to Aden for help. To meet the great distress likely to be experienced at Aden owing to the prevalence of famine in the provinces of the Arabian mainland, supplies of grain were forwarded from Bombay for distribution amongst the most needy of the inhabitants.

Aden has been visited by epidemic cholera previous to the recent outbreak. In the report of the General Board of Health on the epidemic of 1848-49, it is stated (p. 4) that in May 1846 the disease appeared with great severity at Aden. Sub-Assistant Surgeon Ruttonjee Horunggee, who was in charge of the Engineer depôt of the station during the outbreak of 1858, asserts\* that genuine epidemic cholera was unknown there until that date. Undoubted solitary cases of spasmodic cholera now and then occurred, and he had seen two such cases within a period of three years. A semblance of diffused cholera, he states, is believed to have occurred in 1848, but the outbreak lasted only three or four days.

Epidemic cholera broke out among the garrison in 1858. The first case occurred in the Engineer depôt on the 29th September. The disease increased rapidly, and in three or four days attained its greatest severity. On the 8th October the attacks began to decline; from the 14th to the 27th inclusive there were no cases, and on the 28th a single seizure terminated the epidemic.

Of the circumstances preceding this outbreak at Aden, all that can be stated with certainty is, that "long before" epidemic cholera had raged terribly on the Arabian coast of the Red Sea, and had caused much mortality at Mecca, Lohea, Hodeida, and Mocha. Massowah, the principal seaport town of Abyssinia, it is reported, also suffered. Two deaths from cholera were said to have taken place on board a ship, bringing a large number of pilgrims from Mecca, as she approached Aden. This vessel anchored in the harbour, but no instance of the disease is known to have happened among the pilgrims while she lay there.

After the epidemic had broken out at Aden, it appeared at Lahej and Berbera (East Africa, a seaport on the southern shore of the Gulf of Aden) with both of which places Aden was in constant communication.

## 3.—TURKEY.

(a) *Turkey in Asia.*

*Jaffa* (estimated population 25,000).—The first case of cholera occurred on the 1st July (Sect. II.). The greatest daily mortality, 65, took place

\* "Transactions of the Medical and Physical Society of Bombay," 1859, p. xxvii.



on the 19th (?) July, and the estimated deaths on successive days from the 12th to the 18th of the month, inclusive, were 11, 17, 9, 8, 23, 55, 45. The outbreak terminated in the town the second week in August, but at that time the disease existed in some villages in the plains near Jaffa, to which it had extended.

The exodus of the population was so great, first under the influence of panic, and secondly from the recommendation of Dr. Philip, a medical missionary resident in the place, supported by the authorities, that not more than 4,000 are believed to have remained in the town towards the close of the epidemic. To this large diminution of the inhabitants is attributed the comparative slowness of the outbreak. Many fled to neighbouring towns and villages, and to Jerusalem, and numbers camped out in the gardens near the town, in the plain, and on the adjacent mountains.

The sole charge of the sick was voluntarily undertaken by Dr. Philip. The native apothecaries were among the first to leave the town when the epidemic appeared. The quarantine doctor, after the manifestation of the earliest cases, secluded himself, was taken ill during his self-imposed confinement, and died on the 30th July. Dr. Philip was left to contend single-handed against the pestilence, and he fulfilled his nobly-conceived task with an energy as remarkable as his philanthropy.

In a report to Her Majesty's Consul for Jaffa, Dr. Philip gives the following estimate of the number of cases of cholera and deaths from the disease, in the town and vicinity, during the outbreak:—

From 1st July to 8th August 1865,—

Cases, about - - - 3,000

Deaths, according to sects, about—

Greeks - - - 105

Greek catholics and Roman catholics 60

Armenians - - - 6

Jews - - - 57

Moslems - - - 352

Total deaths - - - 580

*Jerusalem* (ordinary population estimated, 1863, at 15,500).—Her Majesty's Consul reports, *23d August* 1865: Three or four deaths are said to have taken place from cholera in the city, but they are not believed to have been satisfactorily verified. Cases of "cholera" occur, but none have ended fatally. All arrivals from suspected districts are subjected to quarantine at a certain distance from the walls. The mortality this season has been much lower than usual, owing doubtless to the energetic sanitary and quarantine regulations adopted in anticipation of cholera.—*20th October* 1865: Cholera has broken out in Jerusalem and the neighbouring villages within the last fortnight. The cases ending fatally average probably from five to eight daily, but it is not possible to obtain an accurate report.—*23d October* 1865: The deaths from the epidemic have risen to 45 a day since the 21st. The population is rapidly deserting the city. About one-half of the inhabitants have left, principally for the coast.—*11th November* 1865: The daily mortality increased to 70 (the maximum) among a population thinned by the flight probably of one-third. Then the epidemic decreased with occasional periods of renewed violence. On the 12th November six cases were reported. It is estimated that 600 persons have already fallen victims to the disease. Only three Europeans were attacked, but several Mohammedans of the highest class, amongst others the Mufti and three members of his family, had

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suffered. Twelve hundred portions of meat and rice were distributed for 12 days in succession among the poor, by a relief committee formed by the Foreign Consuls and the Pasha, when the means at command became exhausted. Sanitary measures were actively adopted, and it was proposed, from the 11th November, to light fires in ten different parts of the city for the purification of the atmosphere.

Prior to the 23d August 1865, according to Her Majesty's Consul for Jerusalem, *Gaza*\* and *Nablous*† had suffered much from the epidemic, and *Ramleh*‡ had been less severely visited. The malady existed at Gaza and Nablous at the date given, but was on the decline. The deaths in Nablous had risen to 60 or 70 a day.

*Beyrout* (estimated population 60,000).—The Consul-General reports, under the date 12th July 1865, that since the 1st instant some cases of cholera had occurred in the city and environs, and that three deaths from the disease had taken place on the 11th, and one death on the 12th.

The epidemic prevailed throughout the months of August and September, and did not terminate until late in October. The number of deaths occasioned by it is estimated at from 1,700 to 2,000. This, the Consul-General remarks (21st October 1865) was not a large mortality among the entire population; but the greater part of the inhabitants took refuge in the mountains, and, during the height of the epidemic, probably not more than one-fourth remained in the town. He adds, "such has been the general unhealthiness of the present summer in Beyrout, that hardly a single person of those who remained in town escaped a serious attack either of cholera or fever, and the latter disease is still prevailing to a great extent. Even in the mountains there is more than an ordinary amount of sickness."

*Damascus* (estimated population, previous to the massacre of 1860, 150,000).—Mr. Consul Rogers reports (9th August 1865) on the authority of Dr. Nicora (health officer for France at Damascus) that the first case occurred in the Turkish quarter, opposite the house of the Emir Abd el Kadr, on the 1st August (Sect. II.) The patient was a Turkish lady, who died on the 2nd. The epidemic reached its maximum on the 1st September, when 93 deaths were recorded, and it ended on the 30th September, or soon after, the total mortality being estimated at 3,005. (Appendix III., Table V.)

*Kara Aghash*.—Her Majesty's Consul for Aleppo reports, in a letter dated 12th August 1865, that cholera had broken out at Kara Aghash, a large village about three miles from Alexandretta, and on board Her Majesty's frigate "Orlando," in that port. This latter statement is an error, as the "Orlando" was not on that station at the time. In the reports made to the Navy Medical Department no mention is made of the occurrence of cholera on board any of Her Majesty's ships off Alexandretta during the summer or autumn of 1865.

*Aleppo* (estimated population 100,000).—This city would appear to have been subjected to a frightful visitation of the epidemic. Mr. Consul Skene reports (22nd August 1865) that the disease was officially declared to have broken out on the 11th August, and that at the date of his writing the number of deaths had not exceeded six daily. Under the date 16th October he further reports, that the epidemic had then almost ceased, the deaths having fallen to about 15 daily. It was computed

\* Gaza, 48 miles S. W. of Jerusalem, 2 miles from Mediterranean, pop. 15,000 or 16,000.

† Nablous, 30 miles N. of Jerusalem, 8,000.

‡ Ramleh, 22 miles W.N.W. of Jerusalem, on the route to Jaffa, population about 3,000.

that 10,300 persons of whom 9,000 were Mohammedans, 800 Christians, and 500 Jews, had died of cholera.

*Brusa* (Broussa; population probably 60,000).—Her Majesty's Consul reports (4th October 1865) that cholera broke out in this city in August. At the time of writing the epidemic had entirely subsided, not only in Brusa, but in places contiguous. The mortality had not been great, about 300 having died in the city (Greeks 103, Armenians 55, Jews 20, and the remainder Mohammedans, of whom the number was not well ascertained).

Elsewhere the disease had prevailed at *Ghio*\* and some places on the *Lake of Apollonia*, but the mortality from it was limited. *Mundunia*, the outport most in communication with the capital, escaped the epidemic.

The Consul refers to *typhus* introduced into the city by Circassian immigrants, and to a murrian prevalent among cattle. He believes, from circumstances that have come under his observation, that ferruginous water, from natural springs, is a preventive of the epizootic.

*Smyrna* (estimated population 150,000, of whom 80,000 Turks, 40,000 Greeks, 15,000 Jews, 10,000 Armenians, 5,000 Franks).—The first case of cholera was recorded on the 24th June 1865 (Sect. II.). The greatest mortality from the epidemic in any one day (88) occurred on the 4th July. The last fatal case was reported on the 6th September. (Appendix III., Table IV.) The outbreak lasted 75 days, and the sufferings occasioned by it were greatly aggravated by extreme privation among the poorer classes in consequence of an almost entire cessation of labour. Employers had fled from the town, and business came to a standstill during the progress of the epidemic. The disease fell with greatest force upon the Jewish population, with least upon the Turkish. Its destructiveness was not confined to the city, but extended to neighbouring villages.

The total mortality recorded from cholera, was as follows:—

Armenians	-	-	-	-	47
Catholics	-	-	-	-	94
Greeks	-	-	-	-	396
Jews	-	-	-	-	480
Ottomans	-	-	-	-	165
Protestants	-	-	-	-	11

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1,193

Villages in the vicinity of Smyrna } 600  
(estimated minimum mortality)

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Total - - - - - 1,793

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*Dardanelles*.—Mr. Consul Maling reports, under the date of 18th July 1863, that four or five deaths from cholera had taken place in this town. The general quarantine station for Constantinople for passengers coming from Egypt and other infected places south of the strait was established at Dardanelles. Steamers crowded with fugitives from Alexandria on reaching here were made to discharge their living freights into the lazaretto, which could not contain so great an influx of people, and the local quarantine staff was unable to meet such an unwonted and serious

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\* Principal port on the Sea of Marmora for the import of corn: 16 miles N. N. E. of Brusa.



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emergency. Hence aggravated mortality in the lazaretto itself, and propagation of disease beyond the walls.

*Trebizond.*—Mr. Consul Steevens reports, under the date 2nd August 1865, that two cases of cholera had been landed from the weekly Russian steamer at the lazaretto, both of which had proved fatal. Subsequently several deaths had occurred (in the city?). On the 25th August he reports, that cholera had shown a tendency to increase during the last two or three days. On the 24th several deaths (the exact number not known) happened in the city. Among the Circassians, about 1,200 in number encamped close to the suburbs, 50 deaths daily had been occasioned by the disease for 10 days back. The survivors were about to be sent to Kierrasona, where they would undoubtedly spread the infection.

*Bagdad* (population about 65,000?).—The earliest deaths from cholera in Bagdad were reported on the 25th September 1865, and the epidemic persisted until the 11th November, a period of 47 days. The greatest daily mortality occurred on the 20th October, when 12 deaths were recorded. The total ascertained mortality from the epidemic was 232, representing probably two-thirds of the actual loss of life occasioned by it. (Appendix III., Table VI.)

The outbreak was restricted both in intensity and diffusion. Isolated cases only appeared in the surrounding villages. The precautions taken by H. E. Namik Pasha probably accounted in some measure for the comparatively slight prevalence of the disease in the city and vicinity. The troops of the garrison were encamped outside the walls, pharmacies were established, and such local sanitary measures enforced as time and circumstances permitted.

In addition to the foregoing particulars, Her Majesty's Consul-General for Bagdad, Colonel Kemball, states, under the date 14th November 1865, that the epidemic had travelled to that city along the line of the Euphrates, and manifested itself successively at Suk-esh-Shiookh, Sumaweli, Devanieh, Nejjeff, Kerbela, and Hilleh. "It is remarkable," he writes, "that cholera did not travel to Turkish Arabia, as had been apprehended with the pilgrims returning by the desert route from Mecca, but advanced in its usual course, and with like regularity up to the southern shores of the Persian Gulf from the direction of Muscat, at which port and at Bunder Abbas, the epidemic was raging at the same period with considerable violence. It is remarkable too, that whereas on previous occasions to which I have referred, the stream of infection coming from Kurrachee, along the coast of Mekran, had followed *pari passu* the northern shores of the gulf, extending everywhere into the interior of Persia; the corresponding stream this year had its progress suspended at or a little above the port of Lingah [Lingar?] up to which point also its ravages were exclusively confined to the coast."

Colonel Kemball also states that "nowhere in its progress through Turkish Arabia, save under conditions especially favourable to its development, was the epidemic marked by virulence at all approaching to the visitations of 1846 and 1851. Such conditions presented themselves at Bassorah, at Suk-esh-Shiookh, and more notably at Kerbela, in the malaria of the adjacent marshes, in the deficiency, or bad quality, of the water, in the concourse of pilgrims, and in the absence generally of sanitary arrangements; and their effect accordingly, by predisposing the inhabitants of those towns to choleraic influences, was to occasion a mortality, which at Kerbela was estimated

"much to exceed 100 per diem. The same causes had moreover operated at the same places and elsewhere in marshy districts during the summer months, in producing a malignant typhoid fever, of which the ravages in their aggregate result proved even more fatal than the subsequent epidemic."

Colonel Kemball adds: "It may be worthy of note, that in the year 1847, and repeatedly in the years succeeding the second visitation of 1851 up to 1862, cholera reappeared in Turkish Arabia without apparent cause, its presence (generally in a mild form) being manifested at Bagdad in the period included between August and December, and its duration varying from 35 to 50 days."

*Mosul, Kirkook,\* and Samarrah.†*—Her Majesty's Consul-General for Bagdad also reports (14 November 1865) that Mosul and Kirkook were said to be infected with cholera, and that the earliest cases in the former town had occurred on the 23d October. The intermediate villages were suffering more or less from the epidemic. At Samarrah the mortality was stated to be comparatively slight, but at Mosul very great.

(b.) *Turkey in Europe.*

*Constantinople* (estimated population 800,000).—The first case occurred on the 28th June (Section II.) ; the second case on the 2nd July, both taking place in the harbour on board ships recently arrived from Alexandria. From the last date to the 8th July no case is known to have happened ; but in the next nine days, from the 8th to the 17th inclusive, 155 deaths were recorded.

The epidemic spread throughout the entire city, and subsequently extended to the villages on both sides of the Bosphorus, to some of the towns on both coasts of the sea of Marmora, and to the Princes Islands.

*Therapeia* (population 2,500) on the European shore of the Bosphorus, was attacked suddenly during the night of the 31st July, and in a week from 130 to 140 people were carried off. This village suffered perhaps more than any other village on the strait in proportion to its population.

In the second week of September the epidemic had so greatly decreased in Constantinople that only isolated cases occurred ; and towards the close of the month it was proposed to issue clean bills of health to ships leaving the port. The disease, however, lingered in the city until the middle of October or later. On the 13th October four deaths from cholera were recorded, and on the 17th one death occurred.

A complete series of the official returns of deaths in Constantinople does not appear to have been published. The following return of the first 2,001 deaths in the epidemic (from the commencement of the outbreak to the 31st July) was made to Her Majesty's Ambassador to the Porte, by Dr. Dickson, the physician to the embassy. June 28th one death ; July 2nd, one death ; July 8th to 17th, 155 deaths, or about 17 per diem ; July 17th to 24th, 546 deaths, or about 78 per diem ; July 24th to 31st, 1,299 deaths, or about 186 per diem.

The subsequent daily returns are derived from the "Levant Herald" of different dates.‡

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\* Kurdistan, about 160 miles N. of Bagdad and 90 miles S.S.E. of Mosul.

† 65 miles N.N.W. of Bagdad.

‡ See also "The Lancet" from the 19th Aug. to the 23d September 1865, inclusive.

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*Number of Deaths from Cholera in Constantinople, according to daily Official Returns.*

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## Deaths from Cholera.

26th July - - -	145	18th August - -	188
27th " - - -	138	19th " - -	176
28th " - - -	179	20th " - -	141
29th " - - -	183	21st " - -	143
30th " - - -	186	22nd " - -	114
31st " - - -	291	23rd " - -	81
1st August - -	320	24th " - -	71
2nd " - - -	384	25th " - -	58
3rd " to 8th, no returns.		26th " - -	52
9th " - - -	278	27th " - -	26
10th " - - -	358	28th " - -	45
11th " - - -	218	29th " - -	32
12th " - - -	289	30th " - -	33
13th " - - -	275	31st " - -	25
14th " - - -	220	1st September -	17
15th " - - -	207	2nd " - -	19
16th " - - -	197	3rd " - -	16
17th " - - -	197	4th " - -	9

These returns do not show the entire mortality from cholera, but it is probable that they approach more nearly to the truth than some of the extravagant estimates, which at the time of the outbreak were admitted into some of the English journals.

*Salonica* (estimated population 70,000).—Cholera broke out in the lazaretto of this city among the emigrants from Constantinople, at what date is not stated, but probably towards the close of July or at the beginning of August. Dr. A. Espagne,\* who visited *Salonica* at the end of August or commencement of September, states that as many as 30 deaths occurred daily in the lazaretto. The disease extended to one or more villages near the city, and the outbreak terminated in the first week of September.

One group of cases only appears to have occurred in *Salonica* itself. Her Majesty's Consul reports† that a Turk, after being detained fourteen days in quarantine, was attacked with cholera in his own house in the city and died. His wife who had attended him during his illness, and had not been in the lazaretto, was also seized with the disease and died. A third person living in the same house was likewise attacked. The house was isolated, the inmates removed into other houses, and the malady did not spread further.

*Filurina* (population 7,000; five hours S.W. of Monastir).—Her Majesty's Consul at Monastir‡ gives the following account of an outbreak of cholera at *Filurina*.§

The first case occurred on the 27th October 1865, the last on the 8th November. The number of attacks from cholera was 22, of deaths 14; the number of attacks from choleraic diarrhoea was 39, of deaths 5. (Appendix III., Table VII.)

Shortly before the appearance of the disease at *Filurina*, three cases of cholera, all of which terminated fatally, had occurred at *Banitsa*, a village

\* "Gazette Hebdomadaire de Médecine et de Chirurgie," 20th Oct. 1865, p. 658.

† Copy of Despatch undated, received at For. Office, 30th Sept. 1865.

‡ Monastir or Bitolia, a town of about 30,000 population, 30 miles S. E. of Ochrida, and near the Albanian frontier. It is a principal entrepôt for goods passing between E. and W. Turkey.

§ Despatches, 22d Nov. 1865; 27th Dec. 1865.



on the high road between Salonica and Monastir, distant eight hours from the last-named town and three from Filurina. The three persons attacked had just arrived from Constantinople by way of Salonica, and had contrived to evade the performance of quarantine at the latter place.

A day or two later some cases occurred at Nevolan, another village on the same high road, and situated between Banitsa and Filurina.

Immediately afterwards, in the vineyards near Filurina, the bodies of two peasants were discovered bearing all the signs of having died from cholera; and then the malady appeared in the town itself.

On the disease being recognized a *cordon sanitaire* was drawn around Filurina, and the epidemic does not appear to have extended beyond the limits of the town.

*Gallipoli*, at the southern entrance of the sea of Marmora, and *Rodosto*, 60 miles N.N.E. of Gallipoli, on the European shore of the same sea, are included among infected places by Dr. A. Espagne.\*

*Kustendji*.—The epidemic began here on the 5th August. 20 cases occurred among the English residents (84 in number) of which 11 ended fatally. Among the native population 121 deaths are reported to have occurred. The malady ceased prior to the 7th September.†

*Tultcha* (right bank of Danube, 40 miles from the mouth of the river).—Her Majesty's Consul for Galatz, in a despatch dated the 8th August 1865, reports the occurrence of a few cases of cholera at Tultcha among a detachment of soldiers recently arrived from Constantinople. Thirteen days later he reports that the disease had appeared among the civil population, and that 12 cases were said to occur daily.

*Rustchuk* (on the Danube, population estimated at 30,000).—Cholera broke out on or about the 28th August. The disease appears to have prevailed about a fortnight and to have occasioned 100 deaths.†

#### 4.—RUMANIA.

*Galatz* (Moldavia, left bank of Danube, estimated population 30,000–40,000).‡ —Her Majesty's Consul reports, under the date 8th August 1865, that a three days' quarantine had been imposed upon vessels coming from Constantinople, and upon passengers arriving direct from that city by way of Tchernovada. Vessels with clean bills were to be subjected to 24 hours' observation and medical inspection. Vessels with cholera on board would be sent to Ismail, where a lazaretto was being prepared.§ On the 21st August he further reports, that, in spite of precautions, cholera had crept into Galatz. Ten or 12 deaths occurred daily, but the disease was at that time limited to the worst classes of the population and most unhealthy parts of the town. In a despatch dated the 26th September it is stated that the epidemic had almost entirely disappeared; and it was estimated that during its prevalence 1,000 cases had occurred, and 570 deaths.||

\* "Gaz. Heb. de Méd. et de Chir.," 20th Oct. 1865, p. 457.

† Mr. Harry Leach, "Lancet," 23d Sept. 1865, p. 350.

‡ Her Majesty's Consul for Galatz (Despatch 8th Aug.) says about 80,000.

§ The quarantine station was subsequently removed to Reni. (Despatch, 21st Aug. 1865.)

|| Major Stokes, R.E., in a despatch dated from Galatz, 2d March 1866, writes, "At Orsova, the frontier town of Austria on the Danube, the quarantine, established for a short time, was removed upon the earnest remonstrances of my Austrian colleague on the Commission. Although the cholera visited every Turkish town, where the quarantine was strictly enforced, to within a few miles of Orsova, that place remained quite free from the disease. The passenger traffic through Orsova between the East and Vienna is very considerable, and yet no instance occurred of cholera being imported from the many pest-stricken towns."

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Her Majesty's Consul for Bucharest states that from the 11th August to the 29th, 512 persons had been attacked with cholera, and 242 had died from the disease, in Galatz.

*Brailov* (Ibraila, Wallachia, left bank of Danube, population "cannot exceed 40,000.")\*—From the 11th to the 29th August the epidemic caused 469 deaths in the town out of 1,274 cases. In the hospital during the same period there were 153 cases of which 69 ended fatally.† Towards the close of September, when the outbreak had almost ceased, the total number of cases was estimated at 1,700, and of deaths at 800.‡

*Stelpu* (commune, district of Buseo, Wallachia).—August 21st to 25th, 13 cases, 6 deaths.†

*Jalomitza* (Wallachia ?).—August 25th to 27th, 12 cases, 4 deaths.†

## 5.—BESSARABIA.§

*Sulina* (population 2,500 or 3,000).—The commencement of the epidemic in this town has been already described (Sec. II. § 2). The earliest cases were recognized in the lazaretto on the 1st August, the outbreak reached its highest point about the middle of that month, and it ceased in the beginning of September. Dr. Jellinek|| estimates the number of deaths at 250, and he conjectures (in the absence of all certain knowledge of the number of cases), that 70 per cent. of the persons attacked died. "The attacks," he states, "were most dangerous in the first half of the month of August. Most of the cases then ended fatally, often in three or four hours. The symptoms were vomiting and purging, violent cramps, languid pulse, rapid loss of heat, change in the features, loss of consciousness, convulsive action of the respiratory muscles and throat, followed quickly by death. In all these cases, the secretions of the skin and kidneys were entirely suppressed. If the cutaneous and renal functions began to rally, the patient had a chance of recovery, but he was not secure from passing into a typhoid state. Indeed, during the latter half of August, this state supervened in many cases. I had then often occasion to observe all the symptoms of typhus in their most severe forms, and I noticed the frequent occurrence of metastasis in the parotid glands, and in many parts of the skin.

"Those attacked belonged for the most part to the poorer classes of the people. Sailors, and persons living under favourable conditions, suffered comparatively little. . . . I must, however, remark that every one more or less was attacked with a certain indisposition (malaise) characterised by sensitiveness in the region of the stomach, want of appetite, and above all by a sparing secretion of concentrated, reddish urine."

*Reni* (confluence of the Pruth and Danube; population about 6,000).—The mortality from cholera is estimated at 100.‡

*Ismail* (42 miles east of Galatz, on the left bank of the Kilia, or north arm of the Danube at its delta; estimated population 12,000). There were not less than 350 deaths from the epidemic.‡

\* H. M.'s Consul: Keith Johnston, says 6,000.

† H. M.'s Consul, Bucharest, 3d Sept. 1865.

‡ H. M.'s Consul, Galatz, 26th Sept. 1865.

§ Bessarabia, although an administrative province of S. Russia, is not included in the Russian official report on cholera previously referred to.

|| Report to British Commissioner on the Danube, 7th Oct. 1865.

*Hislitza* (commune, district of Bolgrad).\*—Between the 22d August and 3d September 44 cases and 9 deaths were reported.†

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## 6.—RUSSIA.

The early history of the epidemic in Russia, according to an official report prepared for the Russian Government, has already been given (Section II.), but a brief recapitulation of the facts is necessary in this place. The additional details of the progress of the epidemic in that empire are a literal rendering of those portions of the report referred to which have not been transcribed. The order of the report is followed.

The first case of epidemic cholera in Odessa occurred on the 6th August. A customs' officer, on duty in the quarantine harbour, and residing in Slobodka Voronzow, adjoining Moldavanka, was attacked with the disease, and died in the city hospital after having first been removed, for a short time, to his own dwelling. Since the 29th July, ships from Constantinople, with individuals suffering from cholera on board, had been subjected to quarantine, in the quarantine harbour, the patients being removed to the lazaretto.

On the 22d August, a Jew, living in Jews' Street, also employed at the quarantine harbour, a companion living with him, and the porter's wife of the adjacent house, were attacked, the two latter being seized about the same time and subsequently to the former. On the 23d the porter referred to, and on the 24th his daughter yielded to the malady.

On the 23d, moreover, a workman living in Ouspenski Street, his son aged two years, and his daughter, aged six years, were attacked; and two days afterwards his widow.

The further history of the epidemic is thus described:—

"From Ouspenski Street the cholera passed to Moldavanaka suburb.

"In these quarters, particularly in Moldavanaka suburb, the greatest number of cases occurred. In other parts of the city few cases took place in comparison with the two districts mentioned. It was impossible to follow the course of the disease in its dissemination throughout the city; but it is certain that the individuals attacked had been in communication with, or in attendance upon, persons suffering from the epidemic.

"In the city hospital, at some distance from the lazaretto, and among the patients and attendants, 800 in number, 18 cases of cholera occurred in the space of 35 days.

"In short, during the epidemic, 16 cases took place in the lazaretto of which seven succumbed; and in the city, from the 6th August to the 14th September, 216 persons were attacked, of whom 109 died. Thus, in Odessa, having a population of 118,000, there were 236 cases of cholera, a very insignificant number in comparison with previous epidemics.

"According to the observations of physicians resident in Odessa, the hygienic condition of the city was less satisfactory in 1865 than in preceding years, and the mortality was much greater. During the first eight months of 1865, 3,318 deaths of both sexes were recorded in the four quarters of the city, exclusive of the City and Jews' hospitals; whilst in the decennial period 1851-60, the average mortality of both sexes during the same eight months was 2,538 being a difference of 780, or 30·7 per cent.

"During the summer months the mortality increased greatly, indeed, 1,765 persons of both sexes died in June, July, and August, making 53·1 per cent. of the entire number of deaths; whilst the average

\* Bolgrad, 28 miles N. W. of Ismail.

† H. M.'s Consul, Bucharest, 3d September 1865.



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mortality of the same three months, in the decennial period 1851-60, was 1,210 or 47·6 per cent. The great augmentation of deaths during the summer months is attributed chiefly to an affection of the intestinal canal, which prevailed in the city and which ended fatally in 641 instances (36·5 per cent) during that period.

"About the same time that cholera appeared at Odessa, the disease also manifested itself in the village of Borchî, district of Balta, government of Podolia. [The epidemic commenced here on the 29th July, and it extended to a neighbouring village, Gavinossa, on the 25th August. (See Section II.) In Borchî the disease did not cease until the 25th September, and among a population of 558 souls there were 65 cases, of which 33 died. In Gavinossa the outbreak was severe only until the 1st September (seven days). Between this date and the 25th there were three cases of cholera, all of which recovered. Of the inhabitants of this village, 444 in number, 37 were attacked and 22 died.]

"On the 17th September cholera appeared in the little town of Bogopol and lasted until the 3d October. Of 2,275 inhabitants 202 were attacked by the epidemic and 65 died. On the 25th September the disease manifested itself in the village of Pisarevka, and on the 29th in the villages of Chaousova and Podgoura, where nine persons were seized, of whom five died. On the 19th September cholera broke out in the town of Balta, almost solely among the Jew population, numbering 2,300, and living most wretchedly in very small, damp, filthy rooms, and generally under highly unfavourable hygienic conditions. Between the 19th and 23d of September the epidemic attained its highest degree of development, the average number of cases daily being 33, and of deaths 12. After the 23d September the attacks ranged from 10 to 4 daily, and the deaths from 7 to 2. From the 19th September to the 8th November 416 persons suffered from cholera in Balta, and of these 267 recovered and 147 died, 2 remaining under treatment at the time of the last report. The epidemic appeared also at Jampol, Mohilew, Olgopol, Vinitzy, and Litinsk, in the government of Podolia. In the first of these districts there were seven cases and four deaths between the 26th September and 13th October inclusive; in Mohilew three persons were attacked, and one died. In the three last districts, from the 1st to the 15th November, there were 29 cases, and 7 deaths. From the day when the epidemic first appeared in Podolia to the 15th November, 1,361 persons were attacked with cholera, of whom 844 recovered and 426 died, 91 being convalescent at the time of the latest reports.

"On the 17th August cases of cholera were observed at Kertch. The outbreak of the disease here was insignificant. From the date of the earliest cases to the 27th October, 82 attacks were recorded 39 recoveries, 41 deaths, and 2 convalescent.

"On the 27th September cholera broke out in the town of Berdichev, government of Kiev, almost entirely among the Jew population. The disease prevailed until the 14th November, when it completely ceased. During the outbreak there were 2,898 cases, 2,325 recoveries, and 573 deaths. On the 11th October the disease appeared at Radomysle, in the district of that name, also in the district of Tarastcha; on the 12th October in the district of Ouman, the 15th at Kiev, and the 22nd in the district of Skvira. From the beginning of the outbreak to the 14th November there were, in the government of Kiev, 3,243 cases of cholera, 2,604 recoveries, 587 deaths, and 52 convalescents.

"From the 1st October cases of the epidemic occurred in the districts of Ananiew and Elizabethgrad, and town of Novomirgorod, government of Kherson; and in the interval between the 1st and 22nd October, there were, in the government of Kherson, 56 cases, 28 recoveries, 24 deaths,

and 4 convalescents. On the 12th October cholera broke out in Taganrog and its suburbs; and from that date to the 15th November there were 625 cases, 416 recoveries, 175 deaths, and 134 convalescents. From the 24th November cholera had completely ceased in that town.

"At Jitomir also the epidemic showed itself in the second half of October; and prior to the 1st November there had been 644 cases, of which 237 had recovered and 226 died, while, at that date, 181 remained under treatment.

"Later the disease appeared in the little towns of Choudnow and Troïanow, and in the village of Baranow, district of Jitomir. In the two latter localities there was not a single death, but in Choudnow, from the 23rd to the 25th, of 27 cases, 8 died, 9 recovered, 10 remaining under treatment. In other districts of the government of Volhynia some cases of cholera have also occurred recently, but in the town of Jitomir, towards the close of November, new cases had ceased to appear.

"In a report, dated the 30th October, the Governor of Kovno states that on the 28th of that month a soldier had been seized with sporadic cholera, and that the lower classes suffered from diarrhœa. Four similar cases of sporadic cholera have been observed at Viczni-Volotchok, government of Tver. All the cases recovered.

"On the 17th November a telegraphic despatch announced the outbreak of cholera at Zadonsk (government of Voronège), 13 cases, of which seven proved fatal, having occurred on the 14th of that month. Another despatch announced 17 new cases, of which three were fatal; but according to information obtained on the spot, these were cases of a species of cholera. The Administration has called for more precise information on the subject.

"Somewhat later there was a case of sporadic cholera at Vilna; and on the 17th November a case of cholera was admitted into the Oboukow Hospital, St. Petersburg. The patient, a journeyman printer, had lived in the capital two years without quitting it. The symptoms of the disease were manifested in the highest degree, and he died four hours after admission. At the autopsy the characteristic signs of the invasion of cholera were found in the intestinal canal, but in other organs like indications were not remarked. This isolated case cannot, however, be regarded as the commencement of the epidemic; it is to be considered rather as an example of the sporadic affection which is observed here almost every year. This is proved by the fact, that from the 17th November to the 1st December, only a single case of cholera occurred (22nd November). This case did not present all the serious symptoms of the malady, and the patient, properly cared for, recovered his health in a few days.

"According to the official information as yet received by the Minister of the Interior, it is seen:—

- "1. That cholera has not prevailed seriously in any part of Russia, except in the town of Berditchev:
- "2. That the relative mortality from the disease has been considerable in Kertch, Odessa, Balta, and some districts of the government of Podolia, much less in Berditchev, and other places:
- "3. That the slight mortality of some places has been doubtless due to cases of cholera having been included among the cases of cholera:
- "4. That, as to the mode of invasion of cholera, the transmissibility of the disease by persons suffering from it was particularly marked in two localities only, Odessa and Borchy:
- "5. That in almost every place before the appearance of cholera, the prodromata of the disease, especially premonitory diarrhœa, were observed:

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"6. That, finally, as to treatment, Russian physicians have added nothing to the experience of previous epidemics."

The official report on the progress of cholera in the Caucasus has not yet appeared.

## CENTRAL EUROPE.

Towards the close of September or at the beginning of August, an outbreak of cholera occurred at Altenburg,\* in Saxony, and subsequently the disease extended to Werdan.† Cases also were observed in Zwickau and neighbouring towns. A detailed account of the outbreak has not been published, but it is reported that the first cases in Altenburg occurred among persons who had recently arrived in that town from Odessa, and that up to October 20th there had been 149 cases at Werdan, of which 52 proved fatal.‡ A despatch from Her Majesty's Minister at Dresden, dated the 8th December 1865, states that the disease was then prevalent in parts of Saxony conterminous with the Bavarian frontier.

## THE MEDITERRANEAN.

*Malta.*—The history of the commencement of the epidemic in this island has already been given (Section II.). The disease appeared among the garrison on the 20th June, and among the civil population on the night of the 27th–28th. It broke out in Gozo on the 21st July. The greatest number of attacks among the garrison occurred during the seven days ending the 28th July; the greatest daily number of seizures among the civil population occurred on the 10th August. The epidemic ceased, both among the garrison and the civil population, early in November. (Appendix III., Tables VIII., IX.)

The following is an account of the losses sustained by the outbreak §:—

	Popula- tion Census of 1861.	Attacks.			Deaths.			Rate of Deaths on Attacks per Ceh.	
		M.	F.	Total.	M.	F.	Total.		
MALTA {	Civil -	117,966	993	1,367	2,361	642	837	1,479	62·6
	Military	6,062	142	61	203	102	43	145	71·4
Gozo - Civil	-	15,459	231	314	545	104	149	253	46·4
Total -	-	139,487	1,366	1,742	3,109	848	1,029	1,877	60·3

Twice before the recent outbreak cholera has prevailed in an epidemic form in Malta, namely, in 1837 and 1850; twice also there have been slight outbreaks of the disease, in 1848–49 and 1854–55.

*Epidemic of 1837.*—Early in 1837 cholera prevailed to a considerable extent in the south of Italy, and along the African shores of the Mediterranean. On the 9th June the disease appeared in Malta. The inmates of the ospizio, or poor-house, were first attacked by the malady in an extremely aggravated form. "The epidemic spread rapidly

\* Altenburg, 24 miles S. of Leipzig; pop. 90,419.

† Werdan, 5 miles N. N. W. of Zwickau; pop. 6,218.

‡ Dr. Julius Althaus; "Medical Times and Gazette," 4th Nov. 1865, p. 511.

§ Report of Superintendent and Chief Physician of Police, 5th April 1866.

|| Statistical Reports of the sickness, mortality, and invaliding among the troops in the United Kingdom, the Mediterranean, and British America.—Presented to both Houses of Parliament, 1853, p. 94.



" throughout all the island, not following any regular course, but breaking out in many and distant places at the same time. The mortality reached its maximum about the middle of July, after which the cases gradually declined, and finally ceased in October. At Gozo the disease appeared 27 days later than at Malta, and in one night 40 persons were attacked in a village of which the population did not exceed 200."

The cases and deaths reported among the civil population from the commencement to the termination of the epidemic were as follows :—

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	Population.	Cases.	Deaths.	Ratio per 1,000 living.	
				Cases.	Deaths.
Malta - - -	104,719	7,567	3,783	72	36
Gozo - - -	16,468	812	397	49	24
Total - - -	121,187	8,379	4,180	69	34½

The intensity with which the disease broke out in the ospizio is shown by the following facts. On the 13th June some of the inmates were removed to Fort Ricasoli on the other side of the harbour; "but the disease continued its ravages, and between the 9th and 19th June, among 878 persons resident in the ospizio and fort 293 cases occurred, of which 197 proved fatal." The subsequent progress of the outbreak among these persons was marked by equal severity. From the beginning of the epidemic to the 2nd September no less than 549 (upwards of three-fifths of the entire number) were attacked, and one-half (451) died.

The first two cases among the garrison occurred on the 16th and 17th June in the 92nd regiment, quartered in the Floriana. The malady reached its height between the 8th and 11th July, and finally ceased on the 2nd October. The following table shows the number of cases and deaths among the troops during the epidemic :—

	Strength.	Cases.	Deaths.	Ratio per 1,000 mean Strength.	
				Cases.	Deaths.
Officers - - -	84	8	1	95	11·9
Men - - -	2,131	209	47	98	22·0
Women - - -	333	61	21	183	63·0
Children - - -	522	36	9	69	17·2
Total - - -	3,070	314	78		

#### *Grand Total.*

	Cases.	Deaths.
Civil population - - -	8,379	4,180
Garrison - - -	314	78
Total - - -	8,693	4,258

It is stated by the medical officers that in every case among the troops the disease was ushered in by premonitory diarrhoea, Diarrhoea, dysentery, and fever, were more than usually prevalent during the period of the epidemic. The average duration of the fatal cases was about 12 hours. "The medical officers in Malta were decidedly of opinion that the disease was not contagious."

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*Outbreak of 1848-49.*—In 1848 28 cases of cholera, described by the Principal Medical Officer as “purely endemical,” occurred in the St. Elmo barracks. Of these cases 21 died. In 1849 two cases of cholera were recorded among the troops, of which one died.\* I have no information respecting the prevalence of cholera in these years among the civil population.

*Epidemic of 1850.*—The following account of the origin of this epidemic is given in an unpublished report made to the Director-General of the Army Medical Department, by Dr. Barry, Principal Medical Officer of the Garrison at the time :—

“In the early part of June it was reported that several persons from Tunis had taken refuge in this island, to escape the cholera raging there.

“It was also bruited that on the 9th June ‘Andrea Carsar,’ the master of a Maltese boat, four days after his arrival from ‘Susa,’ was attacked with cholera, and died at his own house in the Cotonnera District. Shortly after two cattle feeders, having disembarked some bullocks from Tunis at the quarantine harbour, were seized with the distemper on returning from their residence at Florian, were conveyed to the new civil hospital, adjoining the Florian barracks, and died after the lapse of a few hours.

“On the 17th of the same month a private of the Royal Malta Fencibles, from the house of the deceased cattle keepers, was attacked with cholera, admitted into hospital, and died 18 hours after.

“It is a curious coincidence, referring to the awful epidemic which ravaged Malta in 1837, that the first admissions into hospital were two men of the 92nd regiment from Florian on the 17th June. On the 21st of the same month a lance-sergeant of the Malta Fencibles, residing at Florian, in a house where several families were located, was brought into hospital in the collapsed stage, and died in 12 hours.”

The subsequent details are also from Dr. Barry’s Report.

The epidemic reached its maximum among the troops on the 23rd July (28 attacks) among the civil population on the 5th August (113 attacks); it ceased among the troops on the 25th September; among the civil population on the 20th October. The malady was ushered in by a “premonitory, or first stage,” marked by “frequent evacuations by stool, “malaise, pain in the epigastrium, loss of appetite, and thirst. These “warnings were for the most part unattended to or concealed, nay, often “most pertinaciously denied, from the soldier’s unwillingness to report his “illness until it became intolerable, when, probably, he was brought by “his comrades into hospital, in a state of depression or collapse.” The average duration of fatal cases among the garrison was 13·8 hours (men 13·6 hours, women 17·6, children 10·1).

The number of cases and deaths among the troops and civil population, also in the Mediterranean squadron, is shown in the following abstracts :—

<i>Garrison.</i>						
<i>(a.) Cholera.</i>						
					Cases.	Deaths.
Officers	-	-	-	-	3	2
Men	-	-	-	-	183	107
Women	-	-	-	-	27	16
Children	-	-	-	-	10	8
Total					223	133

\* Returns; Army Medical Department.

(b.) *Bowel Complaint.*

	Cases.	Deaths.
Men (?) - - - -	407	1

*Civil Population.*(a.) *Cholera.*

	Cases.	Deaths.
Malta - - - -	2,833	1,551
Gozo - - - -	105	78
	<u>2,938</u>	<u>1,629</u>

*Grand Total.*

	Cases.	Deaths.
Civil population - -	2,938	1,629
Military - - - -	223	133
	<u>3,161</u>	<u>1,762</u>

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*Distribution of Attacks and Deaths among the Civil Population of Malta in the different Months of the Epidemic.*

	Attacks.	Deaths.
June - - - -	57	41
July - - - -	750	83
August - - - -	1,504	791
September - - - -	475	309
October - - - -	47	27
Total - - - -	<u>2,833</u>	<u>1,551</u>

*The Mediterranean Squadron.\**

Total strength (men and officers), say - -	6,750
Total attacks from cholera - - - -	296
Total deaths from cholera - - - -	118

*Outbreak of 1854-55.*—In 1854 36 cases of cholera, 18 of which died, occurred among the garrison. In August and September of the same year the disease also was more or less prevalent among the civil population, and occasioned 300 deaths. In 1855 cholera reappeared among the garrison, 16 cases taking place, of which 13 died. Further details are required respecting the outbreak in Malta during 1854-55.

*Canea* (Crete, population 13,000).—Her Majesty's Consul reports (July 28th) that a few cases of cholera, and some deaths from the disease had occurred in the lazaretto, Suda Bay, chiefly among passengers arrived from Alexandria since the beginning of the month. The malady did not spread beyond the quarantine premises. No fresh case had been reported since the 17th, and clean bills of health were issued to vessels leaving the port.

*Rhodes.*—A case of cholera occurred in the lazaretto in June; and a suspected case was reported in the town, the patient having arrived a month previously from Alexandria.†

*Cyprus.*—The epidemic caused 652 deaths in this island.‡

\* The information respecting the Mediterranean squadron was furnished to Dr. Barry, by Dr. Dunn, H.M.S. "Queen." Between the 6th June and 30th Sept., in addition to 80 cases of cholera (of which 46 died) there were among the crew of this ship 313 cases of choleraic diarrhoea, all of which recovered but one, a patient who was phthisical and who died from phthisis.

† H. M.'s Consul, 12th Aug. 1865.

‡ H. M. Ambassador, Constantinople, 12th April 1866.



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The epidemic first manifested itself in Italy at Ancona on the 8th of July (Sec. II). In the course of that month it extended to the surrounding province, and appeared, in slight outbreaks, at Bologna and Modena in Central Italy, and Melazzo in the province of Acqui, Piedmont; while it broke out in a severer form in San Severo and other towns of the Capitanata. Towards the close of August or at the beginning of September the provinces of Bari, Otronto, and Basilicata were invaded, and on the 28th of the latter month San Giovanni a Teduccio on the west coast was attacked, and on the 6th October Naples. During this month and November the disease spread in the provinces of Naples, Salerno, and Lavoro, extending slightly into the province of Frosinone and the Papal States, South Italy; and in North Italy it showed itself in several towns and villages of the provinces of Cuneo, Saluzzo, and Susa (West Piedmont). The epidemic died out in December.

In the absence of complete returns of attacks and deaths, a general account can alone be given of the degree in which the epidemic prevailed in different districts. The malady would appear to have been severe chiefly in Ancona and the vicinity; San Severo, the Capitanata generally, and some portions of the Terra di Bari; also in Naples and the adjoining district. Elsewhere scattered cases and groups of cases mainly occurred, the epidemic obtaining only the slightest hold upon the population. Thus at Bologna, (population, 1862, 109,395,) from the 9th August to the termination of September, there were 28 cases and 19 deaths.\* Cholera first showed itself here among a body of convicts, 19 in number, who had been sent from Pescara to Bologna, by way of Ancona. On their journey they had remained at Ancona from the evening of the 28th July to the 1st October.† On the 9th August four cases had occurred among these convicts, three of which had ended fatally. On the 11th August a case was reported in the city, and scattered cases continued to occur among the civil population until late in September. On the 16 and 17th of that month four cases and two deaths were recorded. In Modena (population, 1862, 55,512) from the 20th August to the 14th September 14 cases occurred. Again, in Melazzo, a village three miles south of Acqui, with a population of 1,588, there were 31 cases and 21 deaths; and two cases occurred at Cavatore and Cortosio, adjoining villages. In Acqui itself (population 7,800) five cases and two deaths occurred prior to the 17th September.

The epidemic reached its acme in Ancona and the adjoining district on the 6th–7th August, and terminated there on the 10th–11th September, having caused a total mortality of 1,316 out of 2,304 cases (city 1,666 cases, 1,034 deaths; vicinity 638 cases, 282 deaths). (Appendix III., Table X.) In San Severo the epidemic broke out towards the close of July or at the beginning of August. On the 27th–28th of the latter month there were 137 cases and 62 deaths, and the malady appears to have ceased before the close of September.

The following account of the appearance and progress of cholera in the city of Naples is extracted from a report presented to the prefect of the province by Dr. A. Margotta on the 22nd November 1865:—

“The cholera appeared in this province (taking into account the suspected cases, which the establishment of the epidemic showed to be real,) on the 28th September. The first fatal instance occurred in the commune of San Giovanni a Teduccio, the victim being a youth.

“Four days later other cases took place in the same commune, the

\* “L’Italie, 2d Oct. 1865.

† “L’Italie, 16–17 Août 1865.

mother and aunt of the person first seized having been attacked. Whilst the disease was thus developed in that centre of population, on the 6th October, an artizan was struck down in the district of Mercato, commune of Naples, a quarter contiguous to San Giovanni a Teduccio. This man lived with his family in the last-named infected commune.

"On the 13th October two more cases were verified; one in the Vico Conceria alla Maddalena in the person of a woman who habitually, several times a day, went to San Giovanni a Teduccio, there to buy bread and macaroni; and the other in the vico Miracoli, district of S. Carlo all' Arena, where a maidservant was attacked, who with her employers had come from the same infected commune, where they had been temporarily residing.

"From causes as yet unexplained a fourth case occurred at the furthest limit of the district of Arrocata, in a rural locality, airy and excellent in every respect, in the family of a rich gentleman, which resulted in the death of a girl of 12 years old. And at the same time (13th and 14th October) other cases occurred in the Vico Cangiana, district of Mercato, namely, a woman who lived with her husband in San Giovanni a Teduccio, whence she had arrived on the previous day; a youth who frequently went to that commune to the house of his aunt; and finally two cases, the seventh and eighth, in the Vico Carogioiello, district of San Giuseppe, and in the Vico Paradiso alla Salute, district Arrocata respectively. In the last two cases it was impossible to explain whence the disease came. In the case which occurred in the Vico Carogioiello this much only could be ascertained, that the husband of the woman attacked lived with his master at the Barra, a commune very near to San Giovanni a Teduccio, whence he came frequently to visit his wife. The other case at Vico Paradiso was that of a gardener who had never been away from Naples. The epidemic having thus started from these points (and it ought to be observed that of the eight first attacks six terminated fatally in a short time) there occurred in ten days, up to the 23d October, about 40 cases, distributed in various proportions over nearly all the quarters of Naples. Continuing its invading course the malady penetrated the district of Porto, where it may be said to have actually raged, not taking into consideration the result of former visitations and the real character of this epidemic, but solely from a comparison of the number of attacks and deaths with those which occurred in other districts. In fact, this quarter which contains 41,603 inhabitants in its most unfortunate days attained a maximum of upwards of 100 attacks, offered most favourable conditions for a rapid and unrestrained development. There are, perhaps, causes which added to some others, extrinsic and special, might explain the reason of the concentration of the malady in that quarter of the city. But if, in the district of Porto, want of cleanliness, density of the population, confined air, misery and its sad habits, such as intemperance, bad food, and other failings in propriety and hygienic rule, acted as the leaven of infection, the same causes were not wanting in the quarters of Mercato and Vicaria, which considered comparatively and taking account of their respective populations, exhibit attacks and deaths in less number than the quarter Porto, as results from the following brief table comprising a period of 20 days :

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Districts.					Population.	Attacks in 20 days.	Deaths in 20 days.
Porto	-	-	-	-	41,603	789	433
Mercato	-	-	-	-	51,960	407	214
Vicaria	-	-	-	-	51,837	278	119

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"From this table it appears that in the district of Mercato, though more populous by upwards of 10,000 inhabitants, the number of attacks and deaths is less by about one-half; and in the district of Vicaria, with nearly the same population as Mercato, the number of attacks hardly exceeds the third of the total of that in Porto. Therefore, it may be concluded, that the number and existence of all the causes named are insufficient to explain the unmeasured progress and disproportionate development of the epidemic there. This deduction finds support in the number of deaths, which at equal proportions was about the same in other districts free from fostering causes of so grave a character.

"It may, therefore, be assumed that some very different cause gave greater vitality to the infection in Porto. Now, it is important to observe that in that quarter is situated the great Custom House of Naples, in which are employed some hundreds of labourers, who, after their daily work is ended, retire to San Giovanni a Teduccio where they live, thence to return early on the following morning. It may be readily surmised that these were for Porto very probably the principal conductors of the malady and the determining cause of its excessive prevalence in that locality.

"In fact—

District.	Population.	Cases in 20 days.	Deaths in 20 days.
Porto - - - - -	41,603	789	433
S. Giovanni a Teduccio - - -	10,002	421	191

with the above proportions, taking into account the population of S. Giovanni a Teduccio, four times less than that of Porto, the latter, at equal proportions, should have had four times as many cases and deaths.

"This observation is materially strengthened by the consideration that the quarters which suffered most severely from the epidemic, as well in the number of cases as of deaths, were those of Pendino, S. Giuseppe, and S. Ferdinando, surrounding and conterminous with Porto, whilst their sanitary conditions, particularly S. Giuseppe and S. Ferdinando, are on a par with or rather better than those of less afflicted quarters.

"..... In about 40 communes of this province attacked by the malady up to the 16th November there occurred 4,473 cases, while in San Giovanni a Teduccio alone there were 600, which are included in the above total."

*Summary of the Principal Places in which the epidemic appeared in Italy.*

NORTH ITALY.

*Piedmont—Province of Susa:* Bardonnèche, Savoulx. *Province of Saluzzo:* Saluzzo, Racconigi, Savigliano, Cavaller-Maggiore, Marene. *Province of Cuneo:* Cuneo, Limone, San Pietro del Gallo, Bassa Borgata, Caraglio, Frassinetta-Casale, Bourgade San Sebastiano (Fossano), Taran-tasca, Borgo Romanini (Fossano), Centallo, Borgata San Gallo. *Province of Albenga:* Zuccarello. *Province of Acqui:* Acqui, Melazzo.

*The Emilian Provinces:* Reggio, Cavriago, Modena, Vignolo, Albareto, Sassuolo, Bologna, Ferrara (military-lazaret), Rimini.

*The Marches:* Ancona, Castelfidardo, Osimo, Falconara, Jesi, Alba-



gina, Sinigaglia, Monte Alboddo, Belforte, Macerata, Morrovalle, Loreto, Recanati, Filottrano, Cingoli, Civita Nuova, Monte Lupone.

*Tuscany*: Arezzo.

*Umbria*: Perugia.

#### SOUTH ITALY.

*Abruzzo*: Pescara, Castel-di-Sangro.

*Molise*: Campobasso, Gildone, Isernia, Larino, Longano.

*Capitanata*: San Severo, San Nicandro, San Marco-in-Lamis, Apricena, Torre Maggiore, Poggio Imperiale, Foggia, Vico del Gargano, San Paolo di Civitate, Lucera, Santa Maria Nuova, Vieste (Foggia).

*Terra di Bari*: Bari, Molfetta, Barletta, Terlozzi, Giovinazzo, Bitonto, Bisceglie, Grumo, Andria, Monopoli, Noci, Polignano, Mola, Corato, Carbonara, Modugno, Trigliano, Montrone.

*Terra d'Otranto*: Manduria, Brindisi, Nardo, Zquinzano, Ginosa, Lecca.

*Basilicata*: Melfi, Rionero, Tito.

*Salerno*: Salerno, Scafati, Ogliastro.

*Napoli*: San Giovanni a Teduccio, Naples, Resina, Castellamare, Portici, Torre del Greco, Barra, Caivano, Afrajola, Casoria, Pomigliano d'Arco, Nisida, Ottajano.

*Terra di Lavoro*: Aversa, Frignano piccolo, Trentola, Marcianise, Acerra, Caserta (and neighbouring villages), Maddaloni, Aversa, Marzano.

*Frosinone*: Giuliano.

*Papal Territory*: Mesa (Velletri), Corneto, Toscanella.

#### AUSTRIA.

*Trieste*.—On the 29th September three persons were attacked with cholera at Prosecco, a village near Trieste. Subsequently (prior to the 5th October) nine cases occurred in the city and suburbs of Trieste, six of which proved fatal.\* On the 18th-19th October two cases occurred in the city.†

#### SPAIN.

An account of the first appearance of the epidemic in Spain, at Valencia, early in July 1865, as currently reported, and its extension in that city, has already been given (Sec. II.). A history of the subsequent progress of the malady in that kingdom has been courteously compiled for me by Dr. Webster, F.R.S., from the Spanish medical journals, and I give it in his own words:—

Although cholera is believed to have been introduced into Valencia early in July, the disease did not prevail extensively in the city until the commencement of August. "Towards the end of the first week of that month the deaths reached to 30 in one day. On the 12th at least 70 fatal cases were reported, some being persons of distinction and scions of nobility.

"About the third week of August, a few cases of cholera were met with at Albacete, a town 100 miles south-west of Valencia, and having nearly 11,500 inhabitants, many being employed in cutlery and other manufactures.

"In this town several cases ended fatally, and among these were Professor Hoffman of Nuremberg, in Germany, and his wife, who had recently arrived by sail from Valencia, where they doubtless had contracted the malady which became here developed. The epidemic did not spread to any great extent either in the town of Albacete or the province of that name, although cases were observed in various localities, as well

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\* H. M.'s Consul, 5th Oct. 1865,

† "L'Italie."

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as in Cullera, Robledo, Jativa, and other small towns of the province of Valencia. In Cartagena and Murcia, both considerable cities southward, the former being a seaport on the Mediterranean, several cases of cholera were recorded during the last week of August. In different villages of the province of Teruel, which lies 80 miles north-west of Valencia, several deaths by cholera were also reported to have occurred about the same period; while at Alcaniz, in Aragon, having 6,000 inhabitants, the malady likewise proved severe, 200 cases having occurred there before the end of the month just named. Moreover, the epidemic in Valencia continued to extend throughout the city, and the mortality ranged from 75 to 80 deaths daily, notwithstanding the immense emigration which had taken place, through the great terror prevalent among the community, 20,000 persons, it is said having fled as if from a doomed city.

"Exact accounts of the mortality occasioned by the epidemic to this period have not yet been published. According to some trustworthy authorities, at least 5,000 deaths occurred in the Valencian capital, irrespective of many in the immediate vicinity; and the mortality in various localities adjacent was considerable, or "hororoso," as one writer asserts. In Cullera, having a population of 9,400, the deaths were above 100 during several consecutive days. In Jativa, with nearly 8,000 inhabitants, 200 victims were recorded before the close of August, the malady having first appeared on the 14th of that month.

"In Alicante and also in Seville the epidemic broke out early in September, but the former city suffered only slightly. Seville was more severely affected. The disease was first recognised in the suburb of Triema, beyond the Guadalquivir river, but it soon extended to the city proper, in which during the outbreak the deaths averaged 60 daily.

"Other localities in the provinces of Valencia, Murcia, and Cuenza, might be designated where the epidemic also prevailed to a certain extent, although less seriously than in the places previously named. Among the districts thus slightly infected were Villastan, Regnena, Sueca, Silla, Valdecuenca, Montalvo, and Cassimarro,

"Barcelona suffered severely from the epidemic. In this city the first case of decided cholera was recognised on the 22nd July, when a priest who had recently arrived from Valencia, where the malady then existed, was seized and died after a few hours illness. From the above date no fatal case of cholera was reported in Barcelona until the night intervening between the 10th and 11th August, when seven deaths were registered. The epidemic then spread rapidly in the city, and it did not cease until the 10th October. During the two months of its prevalence, the total mortality from all causes, ascertained to have taken place within the precincts of Barcelona was 3,765, of which 1,893 deaths were assigned to cholera, and 1,872 to maladies ordinarily prevailing.

"It is an interesting fact, that when cholera prevailed in the Catalonian capital in 1854 the epidemic also commenced early in August, but it proved more fatal at the beginning than afterwards; whereas during the recent invasion the virulence of the epidemic was greater towards the termination. In August 1854, 233 deaths from cholera were registered; but in the recent outbreak only 132 deaths had been reported from the 10th August to the 17th September, the remaining 1,701 occurring after the latter date.

"The usual rate of mortality in Barcelona from all causes averages about 15 daily, hence the number of deaths during the period when the recent epidemic prevailed would have been less than 1,000. Thus it is apparent that the mortality from the diseases usually present during August and September in the city (1,872) was largely in excess, independently of the deaths caused by cholera (1,893).

"The panic which seized upon the Barcelonese population after the epidemic had broken out was so great that no less than 30,000 persons fled from the city.

"In other districts of the peninsula cholera also prevailed, but not so severely as in Valencia and Barcelona. As a rule the epidemic chiefly appeared in cities on the sea coast and adjoining towns and villages, or in low-lying crowded towns near rivers. To this rule there were, however, important exceptions, as in the case of Madrid.

"The capital of Spain is situated at a greater elevation than any other city in Europe. It is built upon a sandy soil, there is little vegetation in the city, and the Manzanares river is without water during several months of the year. Although the atmosphere is commonly clear and bright, it is so subtle and penetrating as to exercise an unfavourable influence upon the health. According to a popular couplet—

"El aire de Madrid es tan sutil,  
Que mata á un hombre, y no apaga á un candil."

To the acclimated such piercing blasts are most injurious; to strangers they are deadly.

"The epidemic broke out in Madrid during the first week of October. On the 8th of that month, the Madrid medical journal "*El Siglo*," reported the occurrence of 40 cases. Prior to the appearance of the disease, diarrhœa, bilious colic, and dysentery had become prevalent.

"About the same time that the epidemic broke out in Madrid it appeared also in Alcala, 20 miles east of the capital, and at the Escorial, 46 miles to the north-west. In both these places the disease was severe and very fatal considering their limited populations.

"In Madrid the development of the epidemic is likened to an explosion. In the three or four days succeeding the 9th October not less than 3,000 cases were registered, of which 1,000 ended fatally. From this period the intensity of the disease appears to have gradually subsided, although the daily average mortality reached 200 for a short time. The outbreak ceased about the middle of October.

"The garrison of Madrid is said to have suffered little in comparison with the civil population. The epidemic, indeed, may be described as having clung to the latter, for many of the numerous fugitives from the city, during the panic occasioned by the outbreak, were seized while flying to, or after they had reached, the places where they sought refuge. Among the persons who fled to Valladolid and Burgos, 24 succumbed to cholera on the journey.

"The official accounts of the sickness and loss of life occasioned by the recent epidemic have not yet been published, hence some of the previous estimates of cases and deaths are doubtless conjectural. The following summary of the localities infected by the malady is, however, derived from trustworthy sources.

"From the commencement of the epidemic to the 1st November the disease had prevailed in 486 localities (towns, villages, and their vicinity) distributed in 22 provinces. In the province of Albacete 23 localities; Alicante 27; Badajoz 9; Balearic Islands 10; Barcelona 7; Cadiz 1; Castellan 37; Ciudad Real 5; Girona 2; Guadalajara 9; Huelva 1; Jaen 2; Madrid 26; Murcia 21; Segovia 8; Sevilla 20; Tarragona 15; Teruel 34; Toledo 4; Valencia 197; Valladolid 1; and Zaragoza 27."

*Balearic Isles.*—On the 13th August 1865, an Egyptian war steamer, the "*Samanut*" (?), from Alexandria, with 1,280 pilgrims on board returning from Mecca to Tangiers, put into Port Mahon (Minorca), having previously touched at Bengazi, Tripoli, and Malta.\* While

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anchored in this port “distempers of a suspicious kind” appeared among the passengers.\*

In a despatch dated the 2nd September, Her Majesty’s Consul for Palma (Majorca, population 40,000) reports the presence of cholera in that town and the flight of one half the inhabitants. From the 6th to the 22nd September 262 deaths were recorded. The disease also appeared at Port Mahon, but prevailed there to a less extent than in Palma.

*Gibraltar* (population, 1860, exclusive of garrison, 15,426).—The first case among the troops occurred on the 18th July. (Sect. II.) The daily returns are incomplete. The latest returns are for the 25th October (1 case, 2 deaths) and 28th (1 case). (Appendix III., Table XI). The resumption of communication with Spain took place on the 23rd November, after thirteen weeks cessation.

The following is the official summary of the cases and deaths from the commencement of the epidemic to the 28th October, its apparent termination :

	Cases.	Deaths.
Military - - -	158	101
Civilians - - -	821	416
Convicts - - -	82	57
	<u>1,061</u>	<u>574</u>

Once before a severe epidemic of cholera had prevailed at Gibraltar, namely, in 1834 ; and in 1849, 1854, 1855–56, and 1860 the population of the Rock suffered from slight outbreaks of the disease.

*Epidemic of 1834.*—In the spring of 1834 cholera prevailed in several towns and villages on the mainland, in the vicinity of Gibraltar. On the 23rd May a soldier was attacked on the Rock in the King’s bastion barracks. On the 3rd and 5th June two of the civil population died of the disease ; and on the 14th and 17th of that month several cases were reported. From the last date the epidemic steadily increased until the middle of July, when the number of cases began to decline, and the outbreak terminated in the beginning of August.

No part of the Rock escaped the malady ; the neutral ground afforded no security ; and several cases occurred among the shipping in the harbour.

The epidemic was preceded by influenza in the spring ; and during the summer, and after the cessation of cholera, slight affections of the bowels were exceedingly common.

The following is a summary of the returns of sickness and mortality from the epidemic :

Population.	Strength.	Cases of Cholera.		Deaths from Cholera.	Ratio per 1,000.	
		Severe.	Slight.		Cases.	Deaths.
MILITARY—						
Men - -	3,048	226	233	131	150	43
Women - -	299	30	14	23	147	77
Children - -	582	13	4	8	29	14
CIVIL—						
Men - -	6,000	193	345	104	90	17
Women - -	5,000	216	267	107	97	21
Children - -	6,000	50	95	41	24	7
Total -		728	958	414		

\* H. M.’s Consul, Palma, 21st Aug. 1865.

**Outbreak of 1849.**—Seventeen cases of cholera and 5 deaths from the disease were recorded among the garrison.

**Outbreak of 1854.**—Twenty-four cases and 12 deaths were recorded among the garrison.

**Outbreak of 1855-56.\***—Ninety-nine cases and 62 deaths were recorded among the garrison.

I have not been able to obtain any information respecting the extent to which cholera prevailed among the civil population of Gibraltar during the outbreaks of 1849, 1854, and 1855-1856.

**Outbreak of 1860.†**—The first cases among the garrison occurred on the 16th August, in the 1st battalion, 8th regiment, quartered in the Grand Casemates; the last case was registered on the 14th December. The following table shows the extent to which the disease prevailed in the different classes of the community :

Population.	Strength.	Cases.	Deaths.	Ratio per 1,000.	
				Cases.	Deaths.
MILITARY—					
Men - - -	5,609	50	31	8·91	5·53
Women - - -	413	10	3	24·21	7·26
Children - - -	610	8	7	13·11	11·47
CIVIL - - -	17,647	68	36	3·85	2·04
CONVICTS - - -	697	58	13	83·21	18·65
Total - - -		194	84		

#### PORTUGAL.

Cases of cholera were reported at *Elvas* (province of Alentajo, on the Spanish frontier, population 16,000) and *Oporto* (population 95,000) in October.‡

#### ALGERIA.

**Algiers.**—Several cases of cholera occurred among troops recently arrived from France early in September. Eight deaths took place from the disease in the military hospital. The malady appears to have been limited to the newly landed detachments, the garrison generally and the civil population not being affected.§

#### FRANCE.

The earliest cases of the epidemic in France, according to official statement, occurred at Marseille on the 23rd July. Dr. Grimaud (de Caux) has endeavoured to show that the disease appeared in that city during the previous month, and that the choleraic poison was brought there direct from Alexandria. The observations upon which he founds these conclusions have been given in Sect. II. In the course of August the malady extended widely in the departments of the Bouches-du-Rhône, Herault, Vaucluse, and Gard, in the south, and in the department of the Seine, in the north. Toulon appears to have been attacked towards the close of August, and the epidemic appeared in the vicinity of Paris on the 18th September. Slight outbreaks occurred also in other departments, and isolated cases in several localities of East and West France. Subsequently the principal towns of two cantons of the department of the Vosges were infected (Raon l'Etape and Rambervilliers),|| and the latest

\* The Military year, April to April.

† Army; "Statistical, Sanitary, and Medical Reports, 1860," p. 43. (Blue Book.)

‡ "Lancet," Oct. 21, 1865, p. 467; and Nov. 4, 1865, p. 524.

§ H. M.'s Consul-General, 26th Sept. 1865.

|| "The Times" (Paris Correspondent), Jan. 19, 1866.

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news\* makes known the presence of the disease and its extension in the departments of Finisterre (particularly in Brest and the vicinity), Morbihan, and Côtes du Nord.

The brunt of the epidemic to the present time has fallen upon the departments of the South and Seine, and particularly upon the three cities of Marseille, Toulon, and Paris. The following is as accurate an account as it is practicable to give, in the absence of detailed official information, of the losses sustained in the three principle foci of prevalence. I add a summary of the places attacked in the different departments, chiefly derived from returns published in the "*Gazette Hebdomadaire de Médecine et de Chirurgie.*"

*Marseille* (population 1861, 260,910).—Earliest cases (officially recognized) 23rd July; maximum number of deaths (309) week ending 16th September; termination of outbreak close of October or commencement of November; total mortality from cholera from the 23rd July to the 23rd October, exclusive of two days (15th and 16th October) for which no returns appear to have been published, 1847. (Appendix III., Table XII.)

The following summary of the mortality occasioned by previous outbreaks of cholera in Marseille is from the papers of Dr. Grimaud (de Caux) on the recent outbreak†:—

1835, 2,576;	month of greatest mortality,	July, 1,493
1837, 1,138;	"	Aug. 820
1844, 2,252;	"	Sept. 1,201
1854, 3,069;	"	July 2,061
1855, 1,410;	"	Sept. 973

*Toulon* (population 1861, 84,987).—First recorded case 27th August; maximum daily mortality (81) 26th September; termination of outbreak close of October or beginning of November; total deaths from cholera, from 27th August to the 22nd October, 1,282.‡ (Appendix III., Table XIII.)

In the epidemic of 1853–54 cholera caused 1,319 deaths in Toulon out of a population of 69,474 souls, the outbreak beginning on the 8th July and ending on the 18th November, the greatest mortality (863) occurring during the month of August. In 1849, cholera also prevailed in Toulon. The outbreak lasted two months and two days, and the mortality was 751.§

*Paris.*—The following account of the invasion of Paris and the department of the Seine is quoted from the "*Temps*":—

"The disease first made its appearance in the suburban villages built on the hills west and north-west of Paris. It has now shifted its ground, and invaded the suburbs to the south and south-east. On the 18th September the first fatal case occurred at Puteaux, a little village on the banks of the Seine, where extensive dye-works occupy a large number of workmen, and which, for filth and want of sanitary arrangements, is a perfect disgrace to its municipal administration. On the 30th there were 3 deaths; 8 on the 22d, and 9 on the 23d. On the 24th there were 5 deaths at Sèvres, 7 in Paris, and 1 at Puteaux; 25th, 1 at Courbevoie, 1 at

\* Feb. 10, 1866. It is estimated that from the beginning of October 1865 to that date 500 deaths from cholera had occurred in Brest.

† See "*Gazette des Hôpitaux*," 1865; and "*Archives Générales de Médecine*," Nov. 1865, p. 632.

‡ The frigate "*El Dorado*" left Toulon, for Alexandria, on the 9th September. During the voyage 11 of the crew were attacked with cholera and five died.

§ "*Documents Statistiques et Administratifs concernant l'Épidémie du Choléra de 1854 comparée aux précédentes Épidémies cholériques qui ont sévi en France.*" Publiés par ordre et sous les auspices de son Excellence le Ministre de l'Agriculture, du Commerce, et des Travaux Publics. Paris, 1862.



Aubervilliers, 15 in Paris; 26th, 1 at Puteaux, 15 in Paris; 27th and 28th, 19 fatal cases for the whole of the department of the Seine; 29th, 16; 30th, 22, several of them being almost immediately fatal; October 1st, 1 death at Puteaux, 4 at Batignolles, 6 in the remaining parts of Paris; 2d, 10 deaths at Puteaux, 10 at Batignolles; 3d and 4th, 54 deaths for the whole of the department of the Seine; 5th, 80 deaths. The following list of fatal cholera cases includes, not Paris alone, but the whole of the department of the Seine: October 6th, 75 deaths; 7th, 81; 8th, 105; 9th, 158; 10th, 169; 11th, 170; 12th, 210; 13th, 180; 14th, 212; 15th, 200."

The maximum daily mortality in Paris (264) occurred on the 15th October, and the progress of the epidemic during that month and November was as follows:

NUMBER of Deaths from Cholera in Paris during October and November, and the first three days of December, 1865.\*

Date.	Deaths from Cholera in the Civil and Military Hospitals and Prisons.	Deaths from Cholera in private Houses.	Total.	Date.	Deaths from Cholera in the Civil and Military Hospitals and Prisons.	Deaths from Cholera in private Houses.	Total.
Oct. 1 to 6	—	—	331	Nov. 5	58	22	80
" 7	67	20	87	" 6	41	17	58
" 8	66	37	103	" 7	32	23	55
" 9	114	38	152	" 8	47	17	64
" 10	123	57	180	" 9	34	21	55
" 11	111	54	165	" 10	31	18	49
" 12	129	62	191	" 11	35	16	51
" 13	114	66	180	" 12	16	12	28
" 14	133	62	195	" 13	33	13	46
" 15	171	93	264	" 14	21	15	36
" 16	134	82	216	" 15	29	11	40
" 17	147	68	215	" 16	21	11	32
" 18	147	82	229	" 17	25	13	38
" 19	120	67	187	" 18	23	10	33
" 20	139	67	206	" 19	30	13	43
" 21	168	78	246	" 20	29	16	45
" 22	147	62	209	" 21	20	9	29
" 23	132	51	183	" 22	22	10	32
" 24	113	44	157	" 23	21	21	42
" 25	116	52	168	" 24	26	12	38
" 26	112	39	151	" 25	10	6	16
" 27	87	46	133	" 26	12	7	19
" 28	88	31	119	" 27	18	6	24
" 29	76	24	100	" 28	13	8	21
" 30	87	38	125	" 29	10	10	20
" 31	79	31	110	" 30	12	7	19
Total -			4,602	Total -			1,365
Nov. 1	63	30	93	Dec. 1	14	5	19
" 2	50	33	83	" 2	4	8	12
" 3	52	29	81	" 3	6	7	13
" 4	68	27	95	Total -			44

October - - - 4,602 deaths  
 November - - - 1,365 "  
 December 1st, 2d, and 3d. - 44 "

General Total - - 6,011 "

\* "Gaz. Hebdomadaire de Médecine et de Chirurgie," 8 Dec. 1865.

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There was a slight recrudescence of the disease during December, and the epidemic had not ceased at the close of the year.

In 1832 (26th March to 30th September), epidemic cholera caused 16,572 deaths in Paris\*; in 1849 the disease carried off in a period of seven months and eight days 10,950 persons; and in 1853-54 the mortality from the same cause was 7,626†, the outbreak beginning on the 7th November 1853 and terminating on the 31st December 1854.

*Note.*—Returns of officers of the Board of Health at the Prefecture of Police, completed to the 14th January 1866, and officially communicated to the Academy of Medicine, show that no case of cholera had occurred on the 13th January, and give the following summary of admissions to the hospitals, and deaths in the city and suburbs, since the commencement of the epidemic.

Admissions to the civil hospitals	-	-	-	2,865
Cases occurring in the hospitals	-	-	-	707

*Deaths.*

In the civil hospitals	-	-	-	1,844
In the military hospitals	-	-	-	162
In private houses in the 20 arrondissements of Paris	-	-	-	3,837
In the rural communes since the last bulletin	-	-	-	545

Total deaths - - - 6,388

The deaths in the 20 arrondissements are thus distributed: 1st arrondissement, 131; 2d, 110; 3d, 179; 4th, 210; 5th, 227; 6th., 131; 7th, 114; 8th, 112; 9th, 107; 10th, 205; 11th, 360; 12th, 249; 13th, 213; 14th, 158; 15th, 107; 16th, 84; 17th, 423; 18th, 385; 19th, 250; 20th, 77.

*Summary of Localities affected by the Epidemic in different Departments of France.*

*Bouches-du-Rhone.*—Marseille, Arle, Le Ciotat, Aix, St. Chamas, Fontvieille, Martigues.

*Var.*—Toulon, La Seyne, Sollies le Pont, Salon, St. Paul, Charleval, Ventaban, Hyères, Cuers.

*Hérault.*—Montpellier, Cette, Mauguio, Saint-Bres and Baillargus (arrondissement Montpellier), Roujan and Maraussan (arrondissement Béziers), Béziers, Agde, Pezenas, Lodève, Vendémian, Canet, Pegnarolles (the last three places in the arrondissement Lodève), St. Chinian, St. Pons.

*Vaucluse.*—L'Isle, Saint-Saturnin (Comtat), Avignon.

*Alpes Maritimes.*—Nice (seven deaths; 19th to 25th September).

*Rhône.*—Lyons (10 deaths; 11th to 21st September).

*Vosges.*—Raon l'Etape, Rambervilliers.

*Calvados.*—Caen.

*Finisterre.*—Brest, and other localities.

*Morbihan and Côtes-du-Nord.*—Several localities.

\* "Rapport sur la Marche et les Effets du Choléra Morbus dans Paris et le Département de la Seine, 1832."

† "Documents Statistiques et Administratifs concernant l'Épidémie du Choléra de 1854." Paris, 1862.

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Cholera appeared at Southampton in September, and a remarkable isolated outbreak of the disease occurred, at the close of the same month and beginning of October, in the parish of Theydon-Bois (Epping), Essex. In June a case of cholera, indistinguishable from the epidemic affection was admitted into Guy's Hospital in the metropolis, under the care of Dr. Wilks. The patient recovered. On the 27th of the same month a second case having all the characteristics of the epidemic affection, occurred in the metropolis, and ended fatally on the 28th. The patient was a water-side labourer, living in Wilmott's Buildings, St. George's parish, Southwark.

*Southampton.*—The first death took place on the 24th September, the case dating from the 17th of the month. There were altogether between the latter date and the 4th November, in Southampton and the vicinity, 60 cases of cholera (27 men and 33 women), of which 35 died.

Cases of cholera, ending fatally, occurred on two of the Peninsular and Oriental Company's vessels, the "Ellora" and "Nyanza," on their homeward voyage from Alexandria in the month of July; cholera being prevalent in that city at the time of their departure. The "Ellora" reached Southampton on the 10th July, and ran into port with diarrhoea among the crew and passengers. The "Nyanza" arrived on the 22nd July, having lost a passenger from cholera five days before her arrival. The officers and crew of this ship had suffered more or less from diarrhoea.

Diarrhoea broke out among the crew of another of the Peninsular and Oriental Company's ships, the "Delta," while lying at Alexandria in August. The day the "Delta" sailed on her homeward voyage, the 28th August, a passenger was received on board suffering from diarrhoea, and he remained on the sick-list until the 10th September, the day before the vessel reached Southampton. Three of the crew were so ill from diarrhoea towards the termination of the voyage, as to be off duty from the 7th September to the 10th.

A careful investigation, conducted for the Privy Council by Professor Parkes, F.R.S., has hitherto failed to show that the persons earliest attacked with cholera in Southampton had communication, direct or indirect, with the crew of the "Delta," or of any other of the Peninsular and Oriental Company's vessels.

*Theydon-Bois, Essex* (a parish in the Ongar hundred, union of Epping, containing, in 1861, 165 inhabited houses, and a population of 610 souls).—Twelve cases, nine deaths. The outbreak occurred at an isolated farmhouse. The head of the house and his wife, after several days stay at Weymouth, had returned home on the 25th September, one or both suffering from diarrhoea. They had travelled to London by express train, passing through Southampton West on the journey, but not stopping there, except during the ordinary halt of the train at the station. From the 28th September to the 6th October inclusive, eight members of the family, including the head of the house, his wife, a maid-servant, and servant boy, were attacked with the cholera. Of these persons five died, one a child, aged eight years, after less than twelve hours' illness, three during the stage of consecutive fever. Within the same period the family medical attendant and a labourer employed about the house were both seized and both died, the former after 10 hours' illness. On the 10 October a woman, who had assisted in laying out the corpse of the labourer was attacked and died the next day. Finally, a grandchild of this woman was seized with choleraic symptoms on the 31st October, and died in 36 hours.



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All the cases but three (those of the medical attendant, the woman last mentioned, and her grandchild) appeared to have been determined by the use of water from a well polluted by leakage from a sink drain and the soil-pipe of a watercloset into which had been cast, first, the diarrhoeal discharges of the head of the house and his wife, and subsequently the "rice-water" evacuations of the first two patients seized with cholera.

## THE UNITED STATES OF AMERICA.

The "Atalanta," an English mail steamer, sailed from London on the 10th October with a full cargo, 28 cabin and 12 steerage passengers. On the 11th she arrived at Havre, remained there one day, and received 24 additional cabin and 540 steerage passengers. These persons came chiefly from Switzerland, Southern Germany, and Eastern France. Almost all had passed through Paris on their journey to Havre, and some had stayed there a few hours, others several days. Cholera was in Paris at the time. Some of the emigrants while at Havre were taken ill, and were visited and attended by Government officials. One woman died; and Dr. Swinburne, the port physician of New York, from the account of the symptoms given to him by her husband, was convinced that she had succumbed to cholera. The "Atalanta" sailed from Havre on the 12th October with a clean bill of health. On the 13th a child died of cholera on board. On the 14th, 16th, 18th, 19th, and 22nd, five deaths from cholera occurred in one family, who, while at Havre, had stayed in the same hotel where the woman, previously referred to, had died. When the ship arrived at New York the surgeon reported 60 cases of cholera, and 15 deaths, during the passage. Subsequently 42 cases took place and 8 deaths; making a total of 102 sick of cholera and 23 deaths. The vessel was subjected to a strict quarantine, and the disease did not spread beyond the crew and passengers.

The "Mary Ann," an American bark, sailed from Havre for New York on the 25th October. She arrived at her destination on the 12th December, and the captain reported 5 deaths during the passage, 4 from cholera\*.

## THE LEEWARD ISLANDS.

*Guadeloupe.*—Cholera is reported to have broken out in a severe form at Point-à-Pître, Guadeloupe, on the 22nd October.† The origin of the outbreak has been assigned to importation by a sailing ship, the "Virginie," which had left Marseille on the 3rd September, when cholera was prevalent there, and had reached Point-à-Pître on the 9th October. The ship carried no passengers, and the health of the crew, numbering 12 or 15 men, had been perfect during the 36 days of voyage. But as the vessel had come from an infected port, and the malady broke out 14 days after her arrival, and when she had commenced to discharge her cargo, the probability of importation of the choleraic poison could not be excluded. Similar arrivals had, however, taken place at Martinique, Saint Thomas, and Guiana (French) without a like result.

\* Canada Medical Journal, February 1866, p. 368.

† Despatches from the Lieut.-Governor of Dominica (25th Nov. 1865), and H. M.'s Consul at Martinique (26th Nov. 1865) designate the disease prevailing at Guadeloupe as *cholera*. The Governor of Guadeloupe, in answer to an inquiry of the Lieut.-Governor of Dominica, writes (5th Nov. 1865): "Il règne à la Pointe-à-Pître seulement, une maladie qui a quelques apparences du cholera, mais qui d'après tous les hommes compétents est une fièvre paludéenne, la fièvre pernicieuse algide. Elle est attribuée exclusivement aux miasmes qui se dégagent des marais avoisinant la ville, miasmes développés extraordinairement par la persistance exceptionnelle des pluies et la hauteur présente des marées."

The disease extended from Point-à-Pitre to the island generally, and at Basse-Terre (a seaport of about 6,000 population) the mortality on the 22nd of November was 108, and on a subsequent day it reached the appalling number of 131.\*

*Marie-Galante* (a dependency of Guadeloupe, lying S.S.E. of that island, and 20 miles N. of Dominica; population 12,000).—Cholera has also appeared in this island.†

*Dominica*.—On or about the 16th November, five men coming from Marie-Galante, in a small boat, landed surreptitiously at the northern extremity of Dominica. Two were ill of cholera at the time, and one of these men died ten, and the other twenty hours after landing. The village to which the strangers had gone after reaching the island, and in which the deaths occurred, was immediately isolated by a sanitary cordon, and the isolation was maintained at the time of the latest news (25th November), no other case of cholera having been reported to that date.‡

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IV.—*Comparison of the present with the previous epidemics.*

The history of the present outbreak of cholera is so far completed as to admit of comparison with previous epidemics in respect of the invasion of Europe and Syria, the chief direction of propagation, the rapidity of progress, and, to some extent, the mortality of the disease. It is requisite, however, before entering upon this comparison, briefly to indicate the chief characteristics, chronological and geographical, of former general epidemic extensions of the malady.§

## § 1.

The first great outbreak began during the summer of 1817 in the delta of the Ganges, and in the course of the next six years (1818 to 1823) the disease gradually extended over the three presidencies and spread widely, eastwards, in Birmah, Siam, Cochin China, China proper, the Indian Archipelago, and probably also Japan||; southwards, in Ceylon and the island of Mauritius; and westwards and northwards, in Arabia, Asiatic Turkey, Syria, to the Mediterranean coast, Persia, Trans- and Cis-Caucasia, finally touching the eastern frontier of Europe at Orenburg and Astracan in 1823.

The outbreak then subsided in Western Asia, and five years elapsed before the disease again showed signs of extending towards Europe.

## § 2.

The second great outbreak began in 1827, when cholera became again very active in Hindostan generally, and, spreading through Cabul, invaded Central Asia. The disease is known also to have prevailed during this year in some parts of Siberia.

The following year (1828) the epidemic appeared at Orenburg and the forts of Rassypnaya and Isetsk on the European frontier of Siberia. In 1829 the disease prevailed in the district surrounding Orenburg, and it broke out with renewed intensity in the North of Persia and the provinces adjoining the Caspian.

\* H. M.'s Consul, Martinique; 25th Nov. 1865, and 26th Dec. 1865.

† Lieut.-Governor of Dominica; 17th Nov. 1865.

‡ Lieut.-Governor of Dominica; 25th Nov. 1865.

§ In this account I shall chiefly follow the "Sketch of the Geography of Epidemic Cholera," by Dr. Gavin Milroy, F.R.C.P., President of the Epidemiological Society, published in the "British and Foreign Medico-Chirurgical Review" for October 1865.

|| Sir R. Alcock: "The Capital of the Tycoon," vol. i., p. 190.

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In 1830 the epidemic attacked Astracan a second time, and in the course of that and the subsequent year, Northern and Central Europe, and Egypt (probably by way of Arabia) were invaded. The malady reached the southern shore of the Baltic in June 1831; the west coast of the Continent in September 1831, and appeared in England on the 26th October of the same year. In March 1832 Ireland was invaded, and in the following June the epidemic effected a lodgement in the western hemisphere at Quebec, 23 months after it had begun its progress through Europe.

During the five following years cholera extended over many districts of Northern and Central America, broke out in the Havanna, and spread widely in Southern Europe and along the north coast of Africa, ravaged Malta, and re-appeared in several towns of North Germany, in Egypt, Syria, and different parts of Asia Minor.

After 1837 cholera disappeared, in an epidemic form, from Europe and the Western Hemisphere.

## § 3.

In 1842 cholera again began to assume epidemic activity in the countries east of Hindostan. Breaking out in Birmah with virulence, it is believed subsequently to have extended to Siam, the Malay Peninsula, and the Eastern Archipelago. In 1845 the disease appeared with great intensity in the North-western provinces of Hindostan, in the Punjab and Cabul. Towards the close of the year it prevailed most destructively in Ceylon. The following year (1846) the epidemic spread widely in the Madras and Bombay Presidencies, in the latter following a north-westerly course. In May it appeared at Aden, on the south coast of Arabia; and in June, while the disease was raging with extraordinary malignancy in Kurrachee, at the mouth of the Indus, it broke out with great severity in Persia.

From Persia the epidemic extended eastwards into Tartary; westward into Koordistan and the pachalik of Bagdad, and thence to Syria and Arabia; and northwards to the Russian frontier.

Early in 1847, after a lull during the winter months, the epidemic invaded the Russian provinces west of the Caspian Sea, and appeared at Astracan in June. Moscow was attacked in September, but it was not until 1848 that the disease began to spread actively in Europe. In June of that year it reached St. Petersburg; in October Edinburgh; and on the 2nd December the United States.

During 1849 the epidemic prevailed widely in Europe and North America; and many districts which had escaped the previous invasion suffered from this.

## § 4.

The fourth great outbreak of cholera occurred in 1854; but since 1849 there had been no interval of entire freedom from the disease in Europe and the Western Hemisphere. In the majority of the countries which had suffered from the third outbreak, cholera had re-appeared from time to time, often contemporaneously in widely separated localities, with more or less violence.

In 1850, while the disease still lingered in North America, it broke out with great severity in China and adjacent provinces and in parts of Hindostan. Isolated outbreaks occurred in Ireland and Central Europe. Sweden, Norway, Denmark and the North coast of Africa suffered more generally. Jamaica was for the first time attacked.

In 1851, scattered, although, as a rule, slight outbreaks took place in Poland and Silesia. Breslau was sharply visited. The disease was present in Algeria and Oran in July, and it extended to the Grand Canary and



Cape de Verde Islands, which had escaped previously. The epidemic still prevailed in Jamaica and Cuba, and it re-appeared slightly in Quebec and other towns of Canada, and in various localities of the United States. Cholera also assumed epidemic activity in the south of Persia this year, and in the following (1852), spreading northwards it reached the shore of the Caspian Sea.

In the summer and autumn of 1852 many parts of Russia and Poland suffered, and the pestilence persisted in Canada, the United States, and Central America. The Bahamas were also affected.

In 1853 cholera became more diffusive in Persia, Russia, and the North-western provinces of Europe. The disease appeared in the South of France, Piedmont, and Portugal, and England was again attacked, the earliest cases occurring during the month of July in London, and in September Newcastle-upon-Tyne was visited with great severity. The epidemic prevailed also along the coast of Barbary, and in various districts of North America and the West India Islands.

In 1854 the fourth great outbreak in Europe occurred. "From the Gulf of Bothnia to the coast of Morocco," Dr. Milroy writes, "and from the Black Sea and the Levant to our own shores there was scarcely a land which escaped its influence." In the western hemisphere numerous places were invaded which had not been affected by previous extensions of the disease. Guadeloupe suffered this year; and the island of Mauritius was again the seat of a severe outbreak after an immunity of 35 years.

In 1855 the epidemic persisted in many parts of Europe and North America, and in some of the Windward Islands. For the first time the disease appeared on the continent of South America, Para being attacked in May, and Rio Janeiro and other localities later in the year.

In 1856 cholera re-appeared in many parts of Europe, North Africa, and central America; and it persisted in Brazil. The disease also broke out with great intensity in the North-western provinces of Hindostan, and prevailed there throughout the following year.

During 1857 and 1858 the epidemic declined in all the centres of infection in Europe and America, and disappeared from many. In 1859 it again broke out in Western Europe, and became prevalent in Ham-burgh during June, in Lübeck, Rostock, and Helsingfors (on the Gulf of Finland) during July; in the South of Sweden, and the province of Murcia, in Spain, during August; and in Stockholm, Rotterdam, and Bruges, during September. Several cases were imported into the seaports of this country from the Continent, and two slight isolated outbreaks occurred during the autumn, one at Glass Houghton, a small village near Pontefract, in the West Riding of Yorkshire; and the other at Wick, the port of Caithness, the northernmost county of Scotland.

The Spanish army, engaged in the invasion of Morocco, and the French in Algiers, also suffered from cholera.\*

After this remarkable recrudescence of the disease in Western Europe, cholera would seem to have entirely disappeared from the Continent and Northern Africa; it ceased also to prevail in the western hemisphere.

The history of epidemic cholera in Europe, Northern Africa, and America, from 1847-48 to 1859, is that of a protracted invasion, with periods of recrudescence.

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\* See for the data respecting the prevalence of Cholera in Western Europe, &c. during 1859, the "Transactions of the Epidemiological Society of London," vol. i., p. 10. At Wick, in September 1859, there were 37 cases of cholera, and 117 cases of diarrhœa. The deaths amounted to 19.

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In 1855-56 cholera became again epidemic in Northern Hindostan; and in 1857 it is known to have accompanied famine at Khiva.\* In 1858 the disease raged in Cashmere, and in the latter part of that year and beginning of 1859 it prevailed at Muttree, in the Himalayas (7,000 feet above the level of the sea).†

In 1860 the malady broke out with great virulence in the North-western provinces of British India; and during the hot and rainy seasons of 1861 it swept over a tract of country covering 300,000 square miles, and containing more than 60,000,000 of inhabitants. This was the most fatal outbreak ever known in India.‡ Nearly a tenth part of the European force, occupying this vast district, was attacked by the epidemic; and the mortality among the troops had never before been so great.§

The Island of Mauritius was invaded by cholera a fourth time, (a slight visitation having taken place in 1856,) towards the close of 1859.|| In December 1860 the disease broke out in Teheran, having previously been prevalent in Yezd, from whence it passed to Kashan and Koom. In 1861 the epidemic again prevailed in Persia, and committed great ravages in the districts surrounding Teheran. It raged also in Cabul, at Candahar, and in other regions west of the Indus during the same year; and it appeared at Bassorah and in other towns of the pachalik of Bagdad.

The countries to the east of Hindostan also suffered, cholera becoming epidemic in China proper, Cochin China, and the Indian Archipelago, contemporaneously with, or in rapid succession to, the outbreak in Northern India.¶

The aggravated character and great dispersion of this epidemic extension of the disease, gave rise at the time to the question, whether it was the precursor of another world-wide migration of cholera.

From the termination of 1861 to the beginning of 1865, the malady prevailed in parts of China, Cochin China, Birmah, and there is reason to believe also in some islands of the Indian Archipelago. In Hindostan it apparently became quiescent, with the exception of occasional local outbreaks \*\*; but nothing is known of its prevalence during this period in Cabul, Afghanistan, Beloochistan, and Persia.

In 1862 cholera became epidemic in Ceylon, and there was a severe outbreak in Mauritius.††

In February and March 1865 (so far as existing data permit a conclusion) cholera was epidemic in some parts of, and subsequently it became generally diffused throughout, the Bombay Presidency. In April and May the disease was prevalent among the European troops at Kurra-chee; in May at Aden; and, assuming the information obtained by

\* "The Russians in Central Asia;" translated from the Russian by John and Robt. Michell. London, 1865, p. 34.

† "Travels of an officer's wife in India, China, and New Zealand," 1864.

‡ First Annual Report of the Sanitary Commission for Bengal; 1864-65.—"In 1861 the most fatal epidemic of cholera occurred that has ever been known in India."—p. 6.

§ "The second and third sections of the Report of the Commissioners appointed to inquire into the Cholera Epidemic of 1861 in Northern India; with an account of the Epidemic by the President of the Commission." Calcutta, 1864.

|| "Transactions of the Epidemiological Society;" vol. i., p. 135.

¶ "Transactions of the Epidemiological Society;" vol. i., pp. 382-384.

\*\* In 1863 the disease prevailed with considerable virulence in some parts of the Bengal Presidency.—"Army Medical Reports, 1863."

†† "Reports of Her Majesty's Colonial Possessions, 1864" (Blue Book). Also "Army Statistical, Sanitary, and Medical Reports, for 1862."

Mr. Calvert to be correct, it must have been present at Makalla in February. APPENDIX.

The dates of the outbreaks, stated by Her Majesty's Consul-General for Bagdad to have occurred along the coast of Mekran, the south coast of Persia as far as Lingar, at Muscat, and along the Arabian shore of the Persian Gulf, (the disease, it is said, having been propagated from Kurra-chee) are not known.

Our knowledge of the present epidemic becomes clearer from the time of the outbreaks at Mecca and at Bagdad; the former, late in April, the latter in September 1865.

From Mecca the epidemic travelled in the tract of returning pilgrims, in one direction, overland, to Damascus and the vicinity; in another direction, by way of Jedda, to Alexandria.

From Bagdad, on another line of diffusion, the epidemic, having first extended to that city from the Arabian shore of the Persian Gulf, by way of Bassorah, and the towns and villages on the course of the Euphrates, travelled to Samarra, Kirkook, and Mosul, infecting the intervening villages and surrounding districts. Mosul was attacked on the 23rd October, and the epidemic was prevalent in that pachalik, and several localities of the pachalik of Bagdad in November.\*

Mecca has suffered several times from cholera during the period of pilgrimage, but I have been foiled in my attempts to obtain accurate information respecting these irruptions, and respecting outbreaks of the epidemic in Egypt. The facts known are exceedingly scanty.

Dr. Colucci-Bey states, in a despatch already quoted (Section I.) that cholera has always been first developed in Egypt in the tract of pilgrims returning homewards from Mecca.

Mr. Consul Stanley has furnished the following data on this subject†:—

Cholera prevailed in Egypt, prior to the present epidemic, in 1831, 1848, 1850, and 1855.

In 1831 the disease broke out in July. The pilgrims, on their return from Mecca, passed through Egypt in the beginning of that month. The date of the "feast of sacrifices" was the 18th May.

In 1848 cholera broke out on the 24th June, the "feast of sacrifices" took place on the 10th November, and the pilgrims passed through Egypt on their return homewards, in the beginning of the January following.‡

In 1850 cholera broke out on the 25th July; the "feast of sacrifices" occurred on the 20th October, and the passage of the pilgrims in the beginning of December.

In 1855 the epidemic began on the 4th June; the "feast of sacrifices" occurred on the 24th August, and the passage of pilgrims through Egypt took place in the middle of October.

In the recent outbreak the disease showed itself early in June; the pilgrims traversed Egypt towards the close of May, and the date of the

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\* A despatch from Bagdad, dated 12th April 1866, states that cholera had again broken out in Suleimania (73 miles E.N.E. of Kerkook) and that it was prevailing severely elsewhere in Turkish Koordistan. The disease was advancing also into Persian territory.

† 17th February 1866.

‡ I cannot reconcile these dates with a statement made in the Report of the General Board of Health on the Epidemic Cholera of 1848-49 (p. 7.) to the effect that, in the outbreak of 1848 in Egypt of 195,000 pilgrims assembled at Tantah 3,000 died. It is probable, however, that the statement refers to pilgrims on their way to Mecca, and that the numbers are grossly exaggerated.



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"feast of sacrifices" is stated by Mr. Consul Stanley to have been the 4th May.

Assuming the foregoing dates to be correct, it would thus seem that twice only has cholera broken out in Egypt contemporaneously with, or immediately subsequent to, the return of the pilgrims from Mecca and their passage through Egypt.

It is a fact of considerable interest, that all the outbreaks occurred in the summer months, "when," as Mr. Consul Stanley observes, "the Nile" is lowest, the Mahmoudieh and other canals almost stagnant, and "a great part of the country foul reeking mud."\*

In the outbreaks of 1831, 1848, 1850, and 1855, Cairo is stated to have been earliest affected by the epidemic; in the recent outbreak, Alexandria suffered first. The cause of this difference is assigned to the rapid manner in which the transit of the pilgrims from Barbary and Turkey returning through Lower Egypt last year was effected, their only halting place being Alexandria.

Pilgrims were not conveyed from Jedda to Suez by steam vessels until the year 1858.

Alexandria was the chief focus of epidemic diffusion. After the development of cholera in Alexandria the disease appeared in rapid succession at Malta, in the principal seaport towns of Syria, the chief western seaport of Asiatic Turkey, Smyrna, in European Turkey at Constantinople, on the east coast of Italy at Ancona, in the South of France at Marseille, on the east coast of Spain at Valencia, and the south coast of England at Southampton.

All these places were in direct and frequent communication with Alexandria, and in several of them (as, for instance, Jaffa, Smyrna, Constantinople, Ancona,) the outbreak of the epidemic was preceded by the importation of cases, or by cases occurring among persons recently arrived, from the Egyptian seaport.

Subsequently to the appearance of cholera at Constantinople, the epidemic showed itself in several seaport towns on the Sea of Marmora, and the Euxine, also in towns on the Danube, which maintained a regular and direct intercourse with the Turkish capital. In several instances, as in the case of infected towns having communication with Alexandria, the manifestation of the disease was preceded by the importation of cases from Constantinople, or the occurrence of cases among persons recently arrived from that city (as at Salonica, Odessa, and Tultcha.)

The extension of the epidemic inland, in Asiatic Turkey, Syria, the south-western provinces of Russia in Europe, European Turkey, Italy (so far as the history of the outbreak there is clearly known), France, Spain, and the extension of the disease to the Leeward Islands in the western hemisphere, has been by a succession of attacks in places having regular intercourse, and generally having intimate communication, with towns previously infected with the malady.

It is not the province of this report to discuss the conclusions to which these facts appear to lead.

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\* Mr. Consul Stanley, although admitting that in certain years cholera might have been brought into Egypt by pilgrims, insists that the disease is endemic there. He makes also the following statement respecting Jedda: "Amongst the thousands of pilgrims who arrived annually at Jedda, no case of cholera was ever reported to me by the master of the ships, nor did it ever break out at Jedda during my stay there, till after the return of the pilgrims from the Mecca sacrifices, when it broke out every year." (17th February 1866.)

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The history of the present epidemic of cholera to the close of 1865 differs remarkably from that of previous great outbreaks, in respect to the invasion of Europe and Syria, the chief line of propagation, the rapidity of progress, and probably the mortality of the malady.

1. For the first time in the history of epidemic cholera, Europe has been invaded by the disease from the south.

In the outbreak of 1829-32, the epidemic spread from the north of Persia to the Russian provinces west of the Caspian Sea, and by way of the Caspian itself, to Astracan. Then extending northwards along the Volga, the disease was disseminated in Central and Northern Russia, and passing westwards through the provinces of the Don Cossacks and Ekaterinoslav, and along the northern coast of the Sea of Azov and Black Sea, it attacked the South-western provinces of Russia. Next advancing through Moldavia, it reached the banks of the Danube, and ascending this river it entered Central Europe. Southern Europe was not attacked until four years later.

In the outbreak of 1845-48 the epidemic followed almost the same route in its invasion of Europe. Advancing from Persia through Georgia, and across the Caucasus, it attacked in succession Tiflis, Keylear, and Astracan. Thence traversing the provinces of the Don Cossacks and Ekaterinoslav on the southern tract of the first invasion it radiated into Northern, Central, and Southern Russia, extended on the south to the provinces on the Danube and Turkey, and again penetrated Central Europe along the course of the river.

In the third great European outbreak the epidemic did not advance from the east, but was developed from foci already existing in several parts of the Continent.

In the present outbreak Southern Europe was first attacked by the epidemic; and the lines of invasion are to be traced, spreading fan-like from Alexandria to Constantinople on the east and Southampton on the west.

Great Britain suffered from each of the three great epidemic extensions of cholera in Europe. In every instance the disease, at the time prevailing on the west coast of the Continent, appeared first in ports on the east coast of this kingdom. In the present epidemic the disease has manifested itself first at Southampton, on the south coast, the port which maintains the closest and most rapid intercourse with Alexandria.

During the epidemics of 1829-32 and 1845-48 Syria was invaded from the east through Koordistan and Bagdad. In the present outbreak the province was attacked in the first instance through the coast towns in regular communication with Alexandria, and subsequently by way of Damascus, shortly after the return of the Mecca caravan.

2. A remarkable feature of the present epidemic has been its rapid and great extension along the coast line as compared with its slight and sluggish penetration inland. Before the close of October the disease had spread along the coast from Kurrachee to Bunder Abbas and Lingar on the north shore of the Persian Gulf; from Muscat to the head of the gulf on the opposite shore; along the south and west coasts of Arabia, the coast of Syria, and western coast of Anatolia; both coasts of the sea of Marmora and the Bosphorus; the south, west, and north coasts of the Black Sea, and northern coast of the Sea of Azov; the east and part of the west coast of Italy; the east coast of Spain, and south coast of France. The epidemic had also touched slightly the south coast of England.

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Along this vast extent of coast line the disease had penetrated inland to Bagdad and Mosul in Asiatic Turkey, the earliest deaths in the former city being recorded three days after the first death in Southampton, the earliest cases in the latter city the day following the advent of the epidemic at Guadeloupe, in the western hemisphere. In Arabia the disease passed into Lahej on the south coast, and the Hedjaz on the west, but it does not appear to have extended beyond Mecca. Damascus, Homs, and Aleppo suffered in Syria, but Brusa appears to have been the furthest point to which the epidemic extended inland in Western Anatolia. Except at Filurina (Monastir) on the south-western frontier, and two or three towns on the banks of the Danube, cholera seems to have been entirely limited to the coast line in European Turkey. In South-western Russia the epidemic has spread through Bessarabia, Podolia, Volhynia, and Kiev, but except in scattered cases, it has not extended beyond these provinces to Central Russia or Austria; and it has not passed along the Danube beyond Rustchuk. In the peninsula of Italy and Spain the disease has been more widely diffused, but still the coast districts have suffered most; and in France, with the exception of the capital and its environs, the epidemic has travelled little inland beyond the southern departments of Bouches-du-Rhône, Hérault, Vaucluse, and Gard.

During the great migratory epidemics of 1829-32 and 1845-48, although cholera showed a marked preference for seaports and low-lying towns on the banks of great rivers, the main course of the disease in Western Asia and Europe was towards and across the central districts. In the present epidemic Western Asia and Europe have been invaded on many points of their coast-line, and the disease is now gradually penetrating the central districts of the former, but the central districts of the latter have to the present time escaped, with the exception of the isolated outbreak in Saxony.

3. In the epidemic of 1829-32 Astracan was attacked on the 20th July 1830; Hamburg in September 1831; Sunderland on the 26th October the same year, and New York in June 1832.

The epidemic occupied nearly 14 months, from the time of its entrance into Europe, in traversing the Continent; 15 months in reaching Great Britain; and two years, less one month, in arriving on the North American coast.

In the epidemic of 1845-48, the disease reached Astracan in June 1847, Hamburg in September 1848 (crossing the Continent of Europe in nearly the same period of time as in the former epidemic), England in the same month (Horsleydown, 22nd September 1848), and New Orleans on the 2nd December of the same year, 19 months after the appearance of the epidemic on the eastern border of Europe.

In the present epidemic, the first case of cholera was recognized in Alexandria on the 2nd June 1865. Eighteen days afterwards (20th June) the disease appeared in Malta; 22 days afterwards (24th June) in Smyrna; and 26 days afterwards (28th June) in Constantinople. In five weeks (8th July) Ancona was attacked, and in seven weeks (23rd July officially recognized) Marseille. On the 17th September the first case of cholera occurred in Southampton; and on the 20th October the epidemic broke out in Guadeloupe.

In less than five months from the appearance of cholera in Alexandria, and about six months from its outbreak at Mecca, the disease had spread from the coasts of the Euxine to the western hemisphere, a rapidity of progress unparalleled in previous epidemics.



4. The swift propagation of the epidemic, since the commencement of 1865, does not appear to have been dependent upon any peculiar virulence of the disease.

In one instance only is it known with certainty that the malady was unusually severe as compared with previous epidemics. The mortality in Gibraltar was the greatest which had ever occurred there from cholera. In 1834 the deaths had numbered 414; in 1860, 84; and in the recent outbreak the mortality was 574; the population and garrison probably not being greater than at the time of the former invasions of the epidemic. The proportion of deaths to attacks in the recent outbreak was also very great, being no less than 54.0 per cent. In 1860, 62.6 per cent. of the seizures among the garrison ended fatally.

In Rosetta, Aleppo, Ancona, and apparently also Guadeloupe, the epidemic raged with much severity. In the two former towns a tenth part of the population would seem to have been carried off. The epidemic extended more widely among the population of the Italian town than in either Alexandria or Cairo, and the large proportion of 62.0 per cent. of the attacks ended in death. It is highly probable that the disease was severe in other towns of Italy, and in several districts of Spain.

The epidemic prevailed in Damascus with about the same degree of violence as in Alexandria and Cairo; but Jaffa, Jerusalem, Beyrout, and Brusa were much less heavily visited.

Some of the smaller outbreaks in the South-western provinces of European Russia, as at Borch and Gavinossa, were severe; but for the most part the epidemic would appear to have fallen slightly upon the populations of the Russian provinces, Bessarabia, and Rumania.

The data for a comparison of the mortality of the present epidemic with previous general outbreaks of cholera are very meagre. So far as these are available they tend to the conclusion that the present epidemic has not, as a rule, been characterised by any special intensity as compared with previous epidemics.

In Cairo the ascertained mortality was less than from any former outbreak, except that of 1850; but it must be added, that the total deaths differed little from the numbers recorded during the outbreaks of 1848 and 1855. In Smyrna the known mortality (1,193) was a little in excess of that which took place during the epidemic of 1848 (1,103). In 1832, the deaths caused by cholera in this town amounted, it is estimated, to from 6,000 to 7,000.\* In Malta the deaths (1,877) were greater in number than those which were recorded during the outbreak of 1850 (1,762) in that island, but much below the mortality which occurred at the time of the first invasion of cholera in 1837 (4,258). The proportion of deaths to attacks (60.3 per cent.) was, however, excessive, as compared with previous outbreaks. Once before only has Marseille been attacked by the epidemic with so little violence. In 1837 cholera caused 1,138 deaths there; in the recent outbreak the mortality, according to the imperfect returns published, was 1,847. In the outbreak of 1854-55 the disease destroyed in this city 4,479 persons. In Toulon the mortality exceeded that occasioned by the epidemic of 1849, and approached nearly to that caused by the epidemic of 1853-54. Paris has suffered less from the present than from any previous epidemic. In Brest, however, the mortality to the 1st February 1866 (500) had largely surpassed that which took place during the epidemics of 1853-54 (201), and 1849

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\* "Etudes sur le Choléra-Morbus observé à Smyrne." Par le Dr. E. Burguières. Paris, 1849.

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(184), and reached within a third of the number of deaths caused by the epidemic of 1832 (792).

The slight manner in which the present epidemic has impinged on the English coast presents a remarkable contrast with former invasions of the disease.

In the three great epidemics of cholera from which this country has suffered, the onset of the disease was marked by several local outbreaks, which took place in the autumn of the year preceding that in which the general outbreak occurred.

In the first great epidemic (1831-32), the disease appeared in Sunderland on the 26th October 1831, and three or four weeks afterwards in other towns of the North of England, and at Haddington in Scotland. Tynemouth was attacked in December, and during the 15 weeks ending the 25th March 1832, 258 cases of cholera, 39 of which proved fatal, occurred in that parish.\* The general outbreak began in May 1832, and ended in December.

In the second great epidemic (1848-49), the disease appeared in London in September 1848, in Edinburgh and Leith, in October, and in Glasgow, Sunderland, Tynemouth, and other places in November, of the same year. From the 22nd September to the end of October 1848, 116 deaths from cholera were registered in London. During the last three months of the year there were decided outbreaks of cholera in 21 counties, causing 519 deaths.† The general outbreak began in April 1849, and ended in December.

In the third great epidemic (1853-54), Newcastle-upon-Tyne was attacked on the 1st September 1848, and the disease destroyed 1,533 people in 65 days.‡ London and other localities also suffered slightly in the course of the autumn. The general outbreak began in the summer of 1854, and ended with the close of the year.

In the present epidemic, from the 22nd September to the 4th November 1865, 35 deaths from cholera occurred in Southampton and the vicinity, and from the 28th September to the 10th October, 9 fatal cases took place at Theydon-Bois (Essex). The effects of the epidemic in England, to the present time, have been limited to these slight outbreaks (assuming the group of cases at Theydon-Bois to be part of the phenomena of the epidemic).

If the development of the present epidemic follows the same course as that observed in previous general epidemics England will again suffer from cholera, to a greater or a less extent, during the current year. But in no former epidemic have the forerunning outbreaks been so slight, and the interval between them and the general outbreak so entirely free from the disease. Experience lends no aid to an interpretation of these facts in their bearing upon the future.

It would be premature to push further a comparison of the present with previous epidemics. The data upon which this report is based are necessarily imperfect, and the epidemic is still in progress. The disease persists in the South-western provinces of Russia in Europe, Saxony, France, and the Leeward Islands, and may again become migratory with the advancing year. I have brought together, in accordance with my instructions, the accessible facts (chiefly from official sources) which throw light upon the origin, diffusion, and prevalence of the epidemic to the

\* Cholera in Tynemouth 1831-2, 1848-9, and 1853. By Dr. E. H. Greenhow. *Transac. Epidemiological Society*, p. 26. *Journal of Public Health*, June 1855.

† Reports on Epidemic Cholera. By Drs. Baly and Gull: Royal College of Physicians, 1854, p. 56.

‡ Report of the Royal Commission appointed to investigate the Outbreak, 1854, p. 464.

present time. I have endeavoured to set them forth so that the gaps which require to be filled up before a complete history of the development and progress of the epidemic can be written will be clearly apparent.

I may be permitted to add, in concluding this report, that the disease in its course and symptoms has not differed in any essential particular in the present as compared with past epidemics. It has not, as a rule, perhaps, spread so extensively among the populations which have been invaded by it, but its seizures, when the disease has become fully developed, have been as fatal,\* its course as rapid, as in previous outbreaks.

In the present, however, as in past epidemics, the inception of the disease has been characterized, in the great majority of cases, by certain prodromic symptoms, more especially diarrhœa. Upon the full recognition of this fact depends the chief safety of a community when cholera has once found an entrance among them.

The clinical history of the present epidemic also shows that medicine is still as helpless (I use the word advisedly) as it ever has been in controlling the course and reducing the fatality of the fully developed disease. But while the painful fact that medicine has not yet discovered the means of rescuing an individual from the advanced stages of cholera is thus made evident, observation as clearly demonstrates that, of all the highly mortal diseases, this in its earlier stages is probably the one most susceptible of certain relief.

The great truth taught in this country by the outbreaks of 1847-48 and 1853-54 is again taught by the present epidemic, namely, *that the medical treatment of cholera is successful chiefly so far as it is directed to the prodromic symptoms, and particularly the prodromic (or, as it is commonly termed, premonitory) diarrhœa.*†

\* Proportion of deaths to attacks during the present epidemic —

Brahilov	-	-	-	47·0 per cent.	England, 1853-54—
Odessa	-	-	-	50·4	Range - 41·0-51·0 per cent.
Malta	-	-	-	60·3	Mean - 45·2
Gibraltar	-	-	-	54·0	Northern India, 1861.
Paris (hospitals)	-	-	-	51·6	European troops 63·8
Ancona (city and environs)	-	-	-	57·1	

† Dr. Charles Lasègue, in a clinical history of the epidemic as observed in Paris, writes: "Cliniquement il existe deux formes de choléra,—l'une lente, progressive, et laissant au médecin le temps d'observer et d'intervenir; l'autre identique dans sa marche, mais tellement rapide, tellement énorme, que les journées sont représentées par des heures et presque par des minutes. Toutes deux débutent par la même terminaison fatale. La diarrhée est l'antécédent obligé, elle commande sans exception les autres symptômes; seulement, dans les cas aigus, la succession des événements échappe à l'examen, et il semble qu'ils ont apparu simultanément. Entre la diarrhée qui devance de huit jours les autres phénomènes cholériques, ou celle qui ne les précède que d'une heure, on trouverait une série non interrompue d'intermédiaires.

"Les formes dites *foudroyantes*, dans lesquelles la première garde-robe cholérique est déjà la maladie, sont si communes que personne n'a pu songer à en méconnaître l'existence. . . .

"Actuellement comme toujours, des malades jouissant de la plénitude de leur santé, gens sobres, robustes, jeunes ou vieux, n'ayant en rien dérogé aux lois d'une hygiène sévère, sont pris d'une diarrhée soudaine qui, dès les premières selles, a l'aspect spécifique; les symptômes s'entassent tumultueusement plutôt qu'ils ne se succèdent; au bout de moins d'une heure le malade est sous le coup du choléra confirmé."

The following paragraphs are from a clinical account of the epidemic as observed in Alexandria, furnished to Dr. Lasègue by Dr. Dumesthè, the physician who had charge of the European cholera hospital in that city during the outbreak there:—

"Le mal n'a presque jamais débuté brusquement. En interrogeant bien, j'ai pu m'assurer que l'attaque avait été précédée d'un malaise, d'un dérangement, d'une diarrhée de quelques jours. Au reste, à peine l'épidémie naissait-elle, que déjà chacun en subissait plus ou moins l'influence et se trouvait atteint d'une diarrhée plus ou moins opiniâtre.



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It is honourable to medicine that its practitioners should not cease their efforts to discover a means of diminishing the mortality of the more advanced stages of cholera. But the public errs gravely in imagining that these efforts, and their futility to the present time, represent the whole knowledge of medicine respecting cholera. The cardinal facts for the public to understand are, that cholera in its early stages is often a readily curable malady; and that the virulent form of the disease in which the patient is, as it were, struck down by death from the beginning, is comparatively rare in this country.

The measures required, both public and private, to ward off an impending or mitigate an existing epidemic of cholera, are amongst the most certain and definite that medicine teaches. Their trustworthiness was demonstrated in the completest manner by the experience of the outbreaks of 1848-49 and 1853-55. These means, hygienic and otherwise, are abundantly set forth in the official reports on the epidemics referred to, and in the text-books of medicine.

## APPENDIX I.

*On the Effects of Hindoo pilgrimages in fostering and disseminating Cholera.*

From the first appearance of cholera in an epidemic form in Hindostan, the powerful influence of Hindoo pilgrimages in determining an outbreak of, and propagating the disease, has been recognized. Thus Mr. Coats, in the Bombay Reports published in 1819,\* speaks of the appearance of cholera at the time of the great religious fair (*Jatra*) of Punderpoor, and its spread in all directions by the pilgrims returning to their homes. M. Souty, writing in 1832, directs especial attention to both the Hindoo and Mohammedan religious fêtes as predisposing causes of the disease.† In 1844, a writer in the "Dnyanodaya" (August) says: "We are well satisfied that for the last eight or ten years the prevalence of cholera in this district [Ahmednuggur] can be traced almost universally to the pilgrimages made to Punderpoor. Whenever a pilgrimage occurs there, cholera almost invariably breaks out among the assembled crowds; people become frightened, and return with all speed to their respective villages; and in a few days you will hear of the cholera in this village and in that, all over the district. Many pilgrims die on the road as

\* "Cette diarrhée se supprimait spontanément après quelques heures, ou persistait quelques jours sans augmentation, lorsque l'intoxication était insuffisante pour prédire l'attaque. Dans le cas contraire, elle devenait plus fréquente, plus liquide, d'un vert pâle ou d'un blanc grisâtre. La palpation du ventre déterminait un clapotement perceptible à distance, indiquant que l'estomac et les intestins étaient pleins d'un liquide pareil à celui dont il vient d'être question. Que si le malade, de son côté, accusait des étourdissements et quelques vertiges, vous pouviez, à coap sûr, prédire la prochaine apparition du choléra."—(*Archives Générales de Médecine*, Novembre 1865.)

It must be added that Dr. Patterson, of the Egyptian Medical Service, in an account of the outbreak at Cairo, observes: "One circumstance marked a great difference between this epidemic and a previous one in Egypt in 1855; viz., that premonitory diarrhœa was not a distinctive character of the disease. The majority of the cases had no premonitory diarrhœa; they were men and women struck down in the prime of life and in good health."—(*Medical Times and Gazette*, Nov. 18th, 1865, p. 546). Mr. John E. Gross, in some "rough notes" of the epidemic 'as it occurred in the convict prison, Gibraltar, also remarks that, "In many cases there was little purging and vomiting; in many, no premonitory diarrhœa."—(*Medical Times and Gazette*, Nov. 11th, 1865, p. 520.)

\* "Reports on the Epidemic Cholera which has raged throughout Hindostan and the Peninsula of India, since August 1817." Published by the authority of Government. 8vo; Bombay, 1819; pp. 150-151.

\* "Rapport sur le Choléra-Morbus observé dans l'Inde, en 1829 et 1850, et comparé à l'épidémie qui règne en Europe;" par J. J. A. Souty. Paris, 1832, p. 21.

"they return to their homes; and when they stop for the night, the cholera is sure to commence immediately."

In 1848 Mr. Samuel Rogers and Mr. Kellie directed attention to the religious festivals held at Conjeveram and Trippety, near Madras, and at Juggernaut as causes of the propagation of cholera.\*

In 1858, Dr. Nash, in a paper on the sanitary condition of Madras,† assigned a higher degree of importance to religious pilgrimages in the dissemination of cholera than appears to have been previously attributed to them. He speaks of the disease spreading from Juggernaut as a centre all over the world, and he quotes a letter of remarkable interest from a native medical subordinate on the Madras establishment, W. Vencataswamy Naidoo, on the causes which give rise to cholera amongst the pilgrims at Juggernaut. This writer gives an account of the food, habits, and general hygienic condition of the pilgrims and observances of the festival. He epitomizes his observations thus:—

"People undergoing every fatigue and toil of long journeys, with privation of food and rest, arrive at their tabernacle half-starved or much exhausted, and have a small enclosed room pointed out by the pundits for the accommodation of 20 or 30 persons; as soon as they have their baggage secured, they repair to the temple, washing themselves in different stinking ponds, and wearing wet or silk clothes (as an undefiled dress), visit the image, eat the various sorts of food with eagerness, taking no notice whatever of its condition, taste, or quality, under a well-impressed idea that such observation would be an act of blasphemy, drink a jumboo-full of very sour rancid tyre, and feel themselves refreshed and very much satisfied for the first day, but from the second or third day the causes of diarrhoea, or cholera, well known to the medical world, viz., sudden transition from heat to cold, aliment of indigestible character, acrid food or acid drinks, oily and putrid substances, and want of free ventilation and drainage, soon operate upon the supposed repenters of sin.

"The streets and houses are impregnated with noxious exhalations emanated from the decomposition of the excrementitious and urinous deposits with which the streets, valleys, fields, and plains are filled during the assemblage of people in great numbers, as well as from the dead bodies thrown out in the fields and in the towns.

"Cholera having thus originated, great alarm and despair are produced among the pilgrims, and the fright and despondency on one hand, and their longings for home, relatives, or friends on the other, act conjointly as depressing agents, rendering their system more favourable to the action of the causes of cholera. The ravages made by this disease annually are very lamentable; and most pitiable is it to observe the annual scene at Juggernaut resulting from deaths in vast numbers, making children motherless or fatherless, or altogether orphans, women as widows, men as widowers, and afflicting others with the loss of brothers, sisters, &c. The loss of property is also effected, and many reach their native towns as beggars, being destitute of food, raiment, friends, relatives, money, or property. However much the deaths among the pilgrims may be ascribed to their moral depravity, still the deprivation of the sanitary reform so urgently needed at Juggernaut is a thing most deplorable."

Dr. Robert Haines, the Superintendent of Mortuary Returns for Bombay, in his report for 1863,‡ expresses the opinion that of all the

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\* "Reports on Asiatic Cholera in Regiments of the Madras Army from 1828 to 1844." Edited by Samuel Rogers. London, 1848, p. 17, and p. 236.

† "Indian Annals of Medical Service, January-July 1858," p. 120.

‡ Deaths in Bombay, 1863, p. xv.



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influences at work in Hindostan in promoting the spread of cholera, none can bear the least comparison with the jatras :—

“But for them,” he says, “in all probability cholera might die out here, as other prevalent epidemics not of an eruptive character have died out elsewhere under improved sanitary conditions. But the jatras effectually prevent this desired consummation. While one epidemic visitation is slowly subsiding and assuming a light sporadic form, the lingering seeds of the poison are nursed and intensified at the jatras, and, thus multiplied a thousand fold, they are dispersed over the whole country in all the lines of the pilgrims’ travel. In a crowded populous city like Bombay the contagion finds but too congenial a home, and thus thousands of lives are sacrificed here to the superstitions of ignorant devotees hundreds of miles distant.

“That the pilgrims should sacrifice their own lives may cause a certain amount of regret, even from a purely economic point of view; but still the chief concern is so far their own : but that they should, in their own fall, carry to destruction a hundred times their number of victims, innocent of their own folly, and more valuable members of the community, is very grievous. The evil is not diminishing,—it is on the increase. The cheap postage, and more rapid means of communication, enable the interested proprietors of these temples to exert their efforts *ad propagandum* with greater success than ever. Circulars are issued by post to the patels of the villages far and near (for communication to the people), specifying the times of festivals, and extolling the fruits of the pilgrimage, and from the increased facilities of travel, the distances from which the pilgrims come, and the fame of the temples which follows them to their home, increase in an ever widening circle.”

In support of his opinion of the importance of pilgrimages in fostering and disseminating cholera, Dr. Haines quotes the Reverend Mr. Lacey’s account of cholera among the pilgrims at Juggernaut in 1844,\* and the statements of the writer in the “Dnyanodaya,” already cited. He also gives the following account from an eye witness (the Rev. Adam White), of a religious festival at Punderpoor in 1863 :—

“I paid my annual visit to Punderpoor in November 1863. Great multitudes from all parts of the country come at that season, sometimes from incredible distances, to the shrine of Vithoba . . . In a flowing stream, in thousands, they pass on to the shrine from every direction ; weary and worn they then encamp near the town mostly in the bed of the river. Some have tents, some light cloth sheds, many nothing at all, to protect them. First comes a day of fasting, distinguished by eating either nothing or else unwholesome trash, and by shouting forth by day and by night, with clang of cymbals, and violent gesticulations up to the last ebb of strength, the names of Vithoba and his wife and their ‘saints.’ Add to this that the whole atmosphere becomes frightfully tainted from the first, so that one cannot walk anywhere, far or near, without being sensible of the most sickening odours. Can it be wondered at that cholera is very often generated at the place ? But the peculiar seed-plot where that pestilence germinates remains to be described. It is believed that it is *the very temple of Vithoba itself*, a small stone room, with no aperture but a small door, into which perhaps 50,000 persons in the course of a few days force their way, and in the immediate neighbourhood of which, in the temple court, may be seen thousands of men and women sitting closely packed, waiting for their turn to enter. So polluted does the air of the temple become, that the vapour from the breath and bodies of the worshippers condenses on the image, thus giving rise to the idea that the god miraculously perspires. The sub-assistant surgeon now appointed by government to Punderpoor,

\* “Calcutta Christian Observer,” 1844.



stated to me his belief that the disease, in its first origin, could usually be traced to *that spot* . . . . . The day after I left Punderpoor, cholera in a bad form manifested itself among the pilgrims, but many did not die. The disease might have died out if it had not been cultivated. But the same pilgrims immediately resorted, as is their wont, to Alandi near Poona, and there it met with a favourable field in which to grow. The seed sown at Punderpoor ripened quickly and fearfully at Alandi, and the grain was then scattered broadcast over the length and breadth of the land by pilgrims on the way home. Poona was one of the first places to suffer, and a vast number died in it. The moment the returning pilgrims reached my field of labour [Sassoor], the disease appeared and people began to die . . . . . Every village almost had its sad tales to tell.”\*

The Sanitary Commissioners of the Bombay and Madras Presidencies are fully alive to the mischief which the public health suffers from the jattras, and they are adopting active measures to abate the evil.

Under the direction of the Madras Sanitary Commission, Conjeveram, and the multitudes resorting to it, at the time of the religious festivals, have been subjected since 1864 to systematic sanitary regulations, with marked benefit to the condition of the place and of the pilgrims. The streets are regularly swept and watered; bullocks, horses, and other animals are not allowed to be quartered in the town; and the most offensive of nuisances, the abominations usually diffused in all directions, has been mitigated by the erection of latrines to which the people readily resort.†

The Bombay Sanitary Commission has been equally active in respect to the religious festivals at Punderpoor. Under the directions of the Judicial Department, a site has been selected for the encampment of pilgrims, and it has been determined to build a hospital for their accommodation.‡ With reference to a proposal made by the Bombay Association in regard to the sanitary arrangements in Punderpoor, the Government has authorized a levy by the Municipal Commissioners of the town of a capitation tax of two annas on every pilgrim visiting the temple.§ Special measures have also been adopted or suggested for the prevention of cholera among the pilgrims, but a description of these measures has not yet been forwarded to England.||

In 1864 an application was made to the Commission, by the magistrate of Poona, for advice as to the construction of a rule to be enforced under sect. 271 of the penal code. It was proposed that this rule should be generally applicable to all towns at or near which jattras are held, and to which people who have attended a jatra at a distant place are in the habit of going; the object being to prevent persons who have been present at the jatra, during the prevalence of cholera, from at once entering any city or cantonment.

On this the Commission wrote:—“As cholera is often sudden in appearance and rapid in diffusion, it is desirable that any rule, having for the object to check the epidemic, should be ready to be at every time put in force without delay.

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\* Mr. White fell a victim to the disease, contracted while ministering to the necessities of the cholera-stricken inhabitants of Sassoor.

† Proceedings of the Madras Sanitary Commission. Generally, on the subjects of the origin and propagation of cholera in India by means of religious festivals, and the sanitary control of Hindoo pilgrimages, see an important paper by Dr. H. B. Montgomery, a member of the Madras Sanitary Commission, read before the Association of Metroplian Officers of Health, and published in the “Medical Times and Gazette” for the 27th January 1866.

‡ Proceedings, 26th Sept. 1865, and 29th Nov. 1865.

§ Proceedings, 3d Oct. 1865.

|| Proceedings, 10th October 1865.

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"It might be ruled that pilgrims returning from a *jatra*, at which cholera has appeared, shall not enter any military cantonment, or any town, until after reasonable evidence that they are free from infection. The evidence required being that they are free from diarrhoea and other signs of the disease, and that two whole days or full forty-eight hours have elapsed since they were in personal communication with or in the society of a person ill with cholera or diarrhoea.

"Should there not be indisputable evidence of this, the pilgrims should be kept under observation for full forty-eight hours, and after that time if no symptoms of the disease, or of its approach, be manifested among them, they might be allowed to pass.

"Should, however, any of the party show signs of cholera, they should be separated at once from the rest, and these others should begin anew a two days' period of probation. When such rules as the above are to be enforced, facilities for procuring food and shelter must be provided for those detained under observation; and medical aid should be at hand to check incipient disease. There should be separate accommodation for the sick. If properly constructed tents be not readily procurable, native blankets joined together and stretched over bamboo or other poles would answer.

"It should be made imperative, when persons are thus detained, that latrines be provided for their use, and if none better be available, then deep narrow trenches must be dug in the ground to the leeward, and the use of these trenches enforced, some of the earth being thrown in again on each occasion of resort to them.

"As there is reason to suppose that ground that has been occupied by troops suffering from cholera, has communicated the disease to others who have subsequently encamped on it, even after a considerable interval of time, it should be made obligatory for those enforcing quarantine to provide some disinfectant for the discharges of the sick and to ensure its being applied. Quicklime may be used. This substance is mentioned although of inferior virtue, because it is the most likely to be procurable, but if Condry's permanganate liquid, or even Bennett's chloride of zinc, or carbolic acid be at hand, any one of them should be preferred to quicklime."\*

## APPENDIX II.

*The Pilgrimage to Mecca.*

That portion of the Mecca pilgrimage which, as would seem to be taught by the present epidemic of cholera, is of most immediate interest to the world outside Mohammedanism, has yet to be fully told. We are as familiar with the holy places of Medina and Mecca, and the observances of the pilgrimage (thanks to Burekhardt, Burton, and other adventurous travellers), as with the more easily accessible Temple of Juggernaut and sacred shrines of Benares, and the religious rites of Hindoo festivals. But there is still much to be learned respecting the conditions under which the toilsome journey to the hallowed cities of the Mohammedan is performed by the bulk of the pilgrims who flock there annually.

There are few subjects which present matter for contemplation so remarkable as the unceasing ebb and flow of pilgrims to Mecca. Every Moslem whose health is good, and who possesses means sufficient to defray the expenses of travelling, ought once in his life, at least, to visit the sacred city; and women are not exempted from this duty. "The pilgrimage to Mecca," writes Sale, "is so necessary a point of practice that, according to a tradition of Mohammed, he who dies without performing it may as well die a Jew or a Christian; and the same is expressly commanded in the Koran."† It may, nevertheless, be per-

\* Report of the Sanitary Commission for Bombay, 1864, p. 43.

† "Translation of the Koran; Preliminary Discourse," sec. iv.

formed vicariously. A visit to the Prophet's tomb at Medina is not obligatory; it is regarded solely as a meritorious work.

Yearly, impelled by faith, true believers turn their steps towards the temple at Mecca, the great centre of Mohammedan aspiration, the Kaabah. From the western boundary of China on the east to the limits of Bosnia and the African shore of the North Atlantic on the west, and from the southern frontier of Siberia, the northern shores of the Euxine and Sea of Azof and the left bank of the Danube on the north, to Java and the remote Mohammedan kingdoms of Eastern and Central Africa on the south, the faithful bend their course to "El Hedjaz," the land of pilgrimage; and so vast is the area over which this movement extends that before the succeeding ebb has entirely ceased, the flow of the next year has commenced.

Pilgrims from East Africa journey, some by native craft along the coast, and others from the more central districts by way of Massowa, Suakin, or along the Nile to Kosseir, and then by boat to Yembu or Jedda. Others, again, continue their route to Cairo, and join the overland caravan for Mecca by way of Medina. This caravan, on its return to Egypt last year, was estimated to number about 1,200 people.

Pilgrims from Morocco, North Africa, also from Turkey in Europe, and the ports of Asia Minor and Syria, are chiefly conveyed by steamers and other vessels to Alexandria and thence they travel by the land route, round the Gulf of Akabah; or by Suez or Kosseir and the sea route to the Medina or Mecca port.\* Pilgrims from the remoter districts of Syria join the Damascus caravan, which, traversing the wild country to the east of the Dead Sea, pursues its course by way of the desert and Medina to Mecca, reaching the latter city in about 40 days.

From Java, Borneo, Singapore, and Hindostan (the Javanese contingent being estimated at 2,000 annually), as well as from the ports on the Gulf of Persia and the Arabian coast, pilgrims are conveyed to Jedda by European vessels chartered for the purpose, and by native craft. The facilities offered for reaching Mecca by steamers plying, at the time of the pilgrimage, along the Persian and Arabian coasts, is said to have diminished largely the size of the Bagdad caravan, and to have put an end to some of the smaller caravans from east and south Arabia. The Afghan pilgrim begins to find it easier (although it be less orthodox) to journey to Mecca by way of Bombay and Jedda than by way of Bagdad and the desert.

Pilgrims from Persia, Beloochistan, Afghanistan, Koordistan, and Central Asia (such as are not seduced by the sea-route) meet at Bagdad, and travelling by way of Bassorah they traverse the desert to Mecca, under the protection of the Ajayl tribe and mountaineers of Jebel Shamar, collecting pilgrims from North-eastern Arabia, the Wahhabis, and other tribes in their course. When Burton visited Mecca this caravan numbered above 2,000 souls.†

Vambéry‡ gives some most curious and instructive information respecting pilgrims from Central Asia. Disguised as a pilgrim and in the company of a small body of pilgrims returning from Mecca, he penetrated to Khiva, Bokhara, and Samarcand. From the latter city he made the backward journey to Teheran, by way of Herat, in the company of several Khokand pilgrims on their route Mecca-wards. His account of the almost intolerable hardships borne by the pilgrims during several months' travel, often exposed to the extreme dangers of the Desert and of predatory tribes, is of singular interest.

\* "Pilgrims arriving at Alexandria, be it known to the reader, are divided into 'bodies, and distributed by means of Tezkirehs to the three great roads, namely, 'Suez, Cosseir, and the Haj route by land round the Gulf of Akabah.'"—(Burton's Personal Narrative, vol. i., p. 247.) The latter route passes by Suez.

† A proportion of Central Asians from Bokhara, Persia, and Circassia prefer the route by Constantinople and Lower Egypt.—(Burton, vol. i., p. 261.)

‡ "Travels in Central Asia;" London, 1864, pp. 407-410.



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Writing of the communication maintained between Central Asia, Persia, Russia, and India, by means of caravans, Vambery adds :—

“Besides the above-named communication on a great scale, we must mention the slender thread of correspondence maintained by single pilgrims or beggars from the most hidden parts of Turkestan with the remotest parts of Asia. Nothing is more interesting than these vagabonds, who leave their native nests without a farthing in their pockets, to journey for thousands of miles in countries, of which they previously hardly know the names, and amongst nations entirely different from their own in physiognomy, language, and customs. Without further consideration, a poor inhabitant of Central Asia, following the suggestions of one sole dream, betakes himself to Arabia, and even to the most westerly parts of the Turkish empire. He has nothing to lose; he seeks to see the world, and so blindly follows his instinct. The world I say, but I mean *his* world, beginning with China and ending with the limits of the Turkish empire.

“Experience convinced me that the farther we advance in Turkestan the greater is the disposition to perform these annual pilgrimages and toilsome journeys. The number of the Hadjis proceeding yearly from Khiva is, on an average, from 10 to 15, from Bokhara 30 to 40, but from Khokand and Chinese Tartary between 70 and 80. If we add thereto the rage of the Persians for pilgrimages to the holy places in Meshed, Kerbela, Kom, and Mecca, it is impossible not to be surprised at the great zeal in favour of such ramblings still prevalent in Asia. The seed, from which sprang the migration of its ancient races, continues still to exist, and but for the civilization of the West and its mighty influence, that press closely upon Asia, on all sides, who knows what revolutions might not have taken place.”

Many of Vambery's fellow travellers had performed the journey to Mecca by Semipalatinsk, Oremburg, Kasan, and Constantinople.

The great bulk of the pilgrims from distant places reach Mecca by the sea routes, and of their condition during the voyage little or nothing is known. There is reason, however, to believe that the hardships they suffer are but slightly inferior to those experienced by the caravans. The masters of vessels trading to the Mohammedan ports of the Mediterranean are in the habit of seeking for deck-loads of pilgrims on their way to or coming from Alexandria. In the instances which I have had an opportunity of observing casually of ships thus freighted, the deck has been without exception so crowded as to interfere with the movements of the crew, and the filth was astounding; the dirty habits of the passengers being exaggerated to an extent painful to witness by the absence of all means for securing or enforcing cleanliness. Crowded together in a confined space, exposed to the sun by day and the cold dews by night, saturated with spray in a stiff breeze and with no shelter from rain or wind, the sufferings of the pilgrims during the voyage, particularly of the women, must often be great, and their liability to disease and to become the propagators of disease must also be great. One of the chief evils to which the pilgrims were subjected appeared to be a deficient supply of water, no special provision being made for their use in this respect.

The pilgrims who journey by native craft are exposed, doubtless, to greater hardships owing to the longer duration of the voyage.

Too much stress, however, must not be laid upon the sufferings to which the pilgrim may be liable at sea. As a rule, he seeks to perform his pilgrimage at the least possible expense, and willingly submits, in order to carry out his object in his own fashion, to a degree of exposure and privation almost incredible to races of less simple habits of life. But it would be well that an investigation should be made of the circumstances under which pilgrims are conveyed by sea to and from

Alexandria and Jedda; and that European ships receiving pilgrims as passengers should, at least, be subjected to surveillance and regulation.

Although pilgrimage is imperative only on those who have the means to defray the expenses of the journey, poor pilgrims who have barely the means of sustenance, or who depend entirely upon the alms of the wealthier, are exceedingly numerous. Vambéry suggests that in some instances this arises from a species of religious vagabondizing; but among the majority a higher motive must exist to induce an exposure to the terrible sufferings which befall them. Burton once questioned a learned Arab on this subject. "By Allah," he replied "there is fire within their hearts, which can be quenched only at God's house, and His prophets' tomb." From the same writer we also gather some knowledge of the extreme hardships to which the poorer pilgrim is subjected. He tells us that no people could endure greater trials than the African pilgrims, who trust entirely to alms and to the dispensations of Providence. Describing the incidents of the route from Medina to Mecca, he says of the first day's journey: "After the long and sultry afternoon, beasts of burden began to sink in considerable numbers. The fresh carcasses of asses, ponies, and camels dotted the way side; those that had been allowed to die were abandoned to the foul carrion birds, the Rakham (vulture) and the yellow Ukab, and all whose throats had been properly cut, were surrounded by troops of Takruri pilgrims. These half-starved wretches cut steaks from the choice portions, and slung them over their shoulders till an opportunity of cooking might arrive. I never saw men more destitute. They carried wooden bowls, which they filled with water by begging; their only weapon was a small knife, tied in a leathern sheath above the elbow; and their costume an old skull cap, strips of leather tied like sandals under their feet, and a long dirty shirt, or sometimes a mere rag covering the loins. Some were perfect savages, others had been fine-looking men, broad-shouldered and long-limbed; many were lamed by fatigue and thorns; and looking at most of them, I saw death depicted in their forms and features."\*

A hard biscuit and millet (*doura*) flour, cooked as circumstances will permit, would appear to constitute the almost sole food of the poor pilgrims on the journey;† but the wealthier class fare better. "Living is simple on such marches," writes Burton. "The pouches inside and outside the shugduf contain provisions and water, with which you supply yourself when inclined. At certain hours of the day ambulant vendors offer sherbet, lemonade, hot coffee, and water-pipes admirably prepared . . . During the night halt, provisions are cooked; rice or kichri a mixture of pulse and rice, are eaten with chutnee and lime-pickle, varied occasionally by tough mutton and indigestible goat."‡

Many pilgrims make their journey a question of trade as well as of religious duty. "It shall be no crime in you," says the Koran, "if you seek an increase from the Lord, by trading during the pilgrimage." Some writers have represented the pilgrimage to Mecca as a commercial fair; but on this opinion Burton remarks "that the Meccan pilgrimage is religious essentially, accidentally an affair of commerce."§

Vambéry assigns to the pilgrims from Central Asia a noteworthy position in the trade carried on between that remote district and Persia, India, Arabia, and Turkey. "The fifty or sixty Hadjis," he writes, "who came with me from Central Asia to Herat transported with them about

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\* "Personal Narrative of a pilgrimage to El Medinah and Meccah;" vol. iii, p. 7.

† "Le Pélérinage de la Mecque;" par M. le Dr. B. Schnepf, Ex-Médecin sanitaire Français en Égypte, &c. Paris, 1865, p. 19.

‡ Op. cit. vol. iii, p. 9.

§ Op. cit., vol. iii., p. 225.



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forty dozen of silk handkerchiefs from Bokhara, about two thousand knives, thirty peices of silk stuff from Namengan, a large quantity of Khokandi dappi (caps upon which the turban is wound), &c. These were Hadjis on one route only. As for the imports, account must also be held of the Hadjis ; for it is very easy to understand that the largest part of the European cutlery that finds its way to Central Asia has been introduced by them.”\*

The period of the Mecca pilgrimage varies eleven days each year, the Mohammedan months being lunar, consequently in the course of time it falls in each of the different seasons. In 1865 the Koorban Bairam (the feast of sacrifice, the principal act of devotion of the pilgrimage) fell on the 4th May ; in the present year it will take place on the 23rd April.

The probable number of pilgrims congregated in Mecca has been discussed elsewhere (Sect. I). The sanitary condition of the city and its immediate vicinity may be surmised from the large addition to the ordinary population and from the extensive encampments of the different caravans and the great number of animals picketed outside the walls, little additional provision being made for public or private cleanliness. Burckhardt thus describes the state of Mecca, after the departure of the pilgrims, at the time of his visit :—“ Rubbish and filth covered all the streets, and nobody appeared disposed to remove it. The streets of the town were crowded with dead carcases of camels, the smell from which rendered the air, even in the midst of the town most offensive, and certainly contributed to the many diseases now prevalent. Several hundreds of these carcases lay near the reservoirs of the Hadj, and the Arabs inhabiting that part of Mecca never walked out without stuffing into their nostrils small pieces of cotton, which they carried suspended by a thread round the neck. But this was not all. At this time the Mekkans are in the habit of emptying the privies of their houses, and too lazy to carry the contents beyond the precincts of the town, they merely dig a hole in the street, before the door of the dwelling, and there deposit them, covering the spot only with a layer of earth. The consequences of this practice may easily be imagined.”†

The duties of the pilgrimage are described as follows by Sale ‡:—

“The pilgrims meet at different places near Mecca, according to the different parts from whence they come, during the months of Shawâl and Dhu’lkaada, being obliged to be there by the beginning of Dhu’lhajja, which month, as its name imports, is peculiarly set apart for the celebration of this solemnity.

“At the places above mentioned the pilgrims properly commence such ; when the men put on the Ihrâm or sacred habit, which consists only of two woollen wrappers, one wrapped about their middle to cover their privates, and the other thrown over their shoulders, having their heads bare, and a kind of slippers which cover neither the heel nor the instep, and so enter the sacred territory in their way to Mecca. While they have this habit on they must neither hunt nor fowl, (though they are allowed to fish,) which precept is so punctually observed, that they will not kill even a louse or a flea, if they find them on their bodies ; there are some noxious animals, however, which they have permission to kill during the pilgrimage, as kites, ravens, scorpions, mice, and dogs given to bite. During the pilgrimage it behoves a man to have a constant guard over his words and actions, and to avoid all quarrelling, or ill language, and all converse with women, and obscene discourse, and to apply his whole intention to the good work he is engaged in.

\* Op. cit., vol. iii., p. 429.

† Op. cit., vol. ii., p. 85.

‡ “Translation of Koran ; Preliminary Discourse,” sec. iv.



"The pilgrims being arrived at Mecca, immediately visit the temple, and then enter on the performance of the prescribed ceremonies, which consists chiefly in going in procession round the Caaba, in running between the mounts Safâ and Merwâ, in making the station on Mount Arafat, and slaying the victims, and shaving their heads in the valley of Mina. These ceremonies have been so particularly described by others, that I may be excused if I but just mention the most material circumstances thereof.

"In compassing the Caaba, which they do seven times, beginning at the corner where the black stone is fixed, they use a short quick pace the three first times they go round it, and a grave ordinary pace the four last, which it is said was ordered by Mohammed, that his follower might show themselves strong and active, to cut off the hopes of the infidels, who gave out that the immoderate heat of Medina had rendered them weak. But the aforesaid quick pace they are not obliged to use every time they perform this piece of devotion, but only at some particular time. So often as they pass the black stone they either kiss it, or touch it with their hand and kiss that.

"The running between Safâ and Merwâ is also performed seven times, partly with a slow pace and partly running, for they walk gravely till they come to a place between two pillars, and there they run, and afterwards walk again sometimes looking back and sometimes stopping, like one who has lost something, to represent Hagar seeking water for her son, for the ceremony is said to be as ancient as her time.

"On the 9th of Dhu'lhajja, after morning prayer, the pilgrims leave the valley of Mina, whither they come the day before, and proceed in a tumultuous and rushing manner to Mount Arafat, where they stay to perform their devotions till sunset: then they go to Mozdalifa, an oratory between Arafat and Mina, and there spend the night in prayer and reading the Koran. The next morning by day-break they visit Al Mashèr al harâm, or the sacred monument, and departing thence before sunrise, haste by Batr Mohasser to the valley of Mina, where they throw seven stones at three marks or pillars, in imitation of Abraham, who meeting the devil in that place, and being by him disturbed in his devotions, or tempted to disobedience, when he was going to sacrifice his son, was commanded by God to drive him away by throwing stones at him; though others pretend this rite to be as old as Adam, who also put the devil to flight in the same place, and by the same means.

"The ceremony being over, on the same day, the 10th of Dhu'lhajja, the pilgrims slay their victims in the said valley of Mina, of which they and their friends eat part, and the rest is given to the poor. These victims must be either sheep, goats, kine, or camels; males, of either of the two former kinds, and females if of either of the latter, and of a fit age. The sacrifices being over, they shave their heads and cut their nails, burying them in the same place; after which the pilgrimage is looked on as completed, though they again visit the Caaba, to take their leave of that sacred building."

The following notes will aid in forming a conclusion respecting the probable effect of these duties on the health of the pilgrim:

The pilgrim's dress, which leaves him half naked, is insufficient to protect the body from the scorching heat of the day and the great cold experienced at Mecca during the night. The pernicious effects asserted to arise from this source, are exaggerated by the exposure of the head, shaven and unshielded, to the sun.

Of the journey to Arafat, Burton writes:—

"The road was covered with white-robed pilgrims, some few wending their way on foot, others riding, and all men bare-footed and bare-headed.

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. . . . . Dead animals dotted the ground, and carcasses had been cast into a dry tank, the 'Birkat el Shami' which caused every Bedouin to hold his nose and show disgust. . . . Arafat is about six hours' march, or twelve miles on the Taif road, due east of Mecca. We arrived there in a shorter time, but our weary camels during the last third of the way, frequently threw themselves upon the ground. Human beings suffered more.

"Between Muna and Arafat I saw no less than five men fall down and die upon the highway; exhausted and moribund, they had dragged themselves out to give up the ghost, where it departs to instant beatitude.\* The spectacle showed how easy it is to die in these latitudes; each man suddenly staggered, fell as if shot, and after a brief convulsion, lay still as marble. The corpses were carefully taken up, and carelessly buried that same evening, in a vacant space amongst the crowds encamped upon the Arafat plain."†

Muna is situated three miles from Mecca on the road to Arafat. The valley, Burckhardt states,‡ is narrow, extends in a right line from west to east, and is about 1,500 paces in length. It is enclosed on both sides by steep and barren cliffs of granite; and in the middle, ranged on each side of the road which traverses it, are several buildings, mostly ruinous. Burton has the following observations on the "feast of sacrifices" there:—

"The pilgrims dragged their victims to a smooth rock near the Akabah, above which stands a small open pavilion, whose sides red with fresh blood showed that the Prince and his attendants had already sacrificed. . . . . It is considered meritorious to give away the victim without eating any portion of its flesh. Parties of Takruri might be seen sitting vulture-like, contemplating the sheep and goats; and no sooner was the signal given than they fell upon the bodies, and cut them up without removing them. The surface of the valley soon began to resemble the dirtiest slaughterhouse, and my prescient soul drew sad auguries for the future. . . . . We returned (next day) to the tent, ere the sun waxed hot, in anticipation of a terrible day. Nor were we far wrong. In addition to the heat, we had swarms of flies, and the blood-stained earth began to reek with noisome vapours. Nought moved in the air except kites and vultures, speckling the deep blue sky: the denizens of the earth seemed paralysed. . . . . Literally the land stank. Five or six thousand animals had been slain and cut up in this devil's punch-bowl. I leave the reader to imagine the rest. The evil might be avoided by building 'abattoirs,' or more easily still, by digging long trenches, and by ordering all pilgrims, under pain of mulct, to sacrifice in the same place. Unhappily, the spirit of El Islam is opposed to these precautions of common sense. 'Inshallah' and 'Kismat' take the place of prevention and cure. And at Mecca, the head-quarters of the faith, a desolating attack of cholera is preferred to the impiety of 'flying in the face of Providence,' and the folly of endeavouring to avert inevitable decrees."§

The most recent Christian visitor to Mecca, M. Maltzan, who succeeded in making the pilgrimage in 1860, disguised as a Mograbin, but who was discovered towards the close of his stay in the Holy City, and narrowly escaped with life, states that the number of animals sacrificed in the valley of Muna has been greatly exaggerated. He estimates that 30,000 pilgrims assembled at Arafat in 1860, and of these he believes that not more than 3,000 immolated victims. The expense of animals at Mecca

\* Those who die on a pilgrimage become martyrs.

† Op. cit., vol. iii., pp. 245, 246, 252.

‡ Op. cit., vol. ii., p. 62.

§ Op. cit., vol. iii., pp. 303, 304, 308, 313.

forbids the poorer pilgrims sacrificing on their own account. The flesh of the victims falls to their lot, and they are apt to eat of it immoderately, even when it has become tainted.

At the close of the pilgrimage, according to Burckhardt, numbers of pilgrims, ill from the fatigues of the road or from cold caught while wearing the ihram, are unable to proceed on their journey homewards, and remain in Mecca, in the hope, often vain, of recovering strength.\*

A sanitary commission has been sent to the Hedjaz by the Turkish government, to make special inquiry concerning the origin of the recent outbreak of cholera at Mecca, and to collect information respecting previous epidemics of the disease there. The commission is also instructed to investigate the sanitary condition of the Holy Cities, and to study, particularly during the approaching pilgrimage, the circumstances which chiefly affect the health of the pilgrims, and under which their transit between Jedda and Suez, and dispersion after the pilgrimage, take place. Generally the commission is directed, while giving primary attention to cholera, and to those causes which might give birth to the disease, or develop it in case of importation, to report on the sanitary state of the Hedjaz.

During the approaching pilgrimage, the rites of which will commence, by the ceremonies at Mount Arafat, on the 22nd April, the commission is to take steps for preventing overcrowding of khans and other resting places, at Jedda, Mecca, and Medina; to provide by tents, for the shelter of the poor and almost naked pilgrims from the burning rays of the sun by day, and the extraordinary humidity, peculiar to the climate of the Hedjaz, by night; to execute necessary measures of local hygiene in the encampments and cities; and to insist particularly upon the removal of the rubbish with which the wells, prepared according to ancient usage in the valley of Mina for the reception of the blood and offal of animals sacrificed, have long been filled up. From this it would appear that Captain Burton's strictures, just quoted, should be limited to the modern Mohammedans.

In the event of cholera appearing among pilgrims arriving from India at Jedda, the commission is instructed to organize provisionally a system of quarantine, and to cause the infected group of pilgrims to undergo fifteen days detention, after the occurrence of the last reported case. If the disease appears in one of the caravans, measures are to be adopted for the isolation of the body of pilgrims, among whom the malady has shown itself. Further, ships engaged in conveying pilgrims are to be subjected to strict surveillance. Finally, the commission is to report on the measures they would suggest for the sanitary regulation of the Holy Cities and of the pilgrims and pilgrimage.

*Postscript.*—A despatch (18th April 1866) received from H. M. Ambassador at Constantinople, after the completion of this report, states briefly the results of the investigation made by the Hedjaz Commission as to the origin of the outbreak at Mecca. Previous to the arrival of the pilgrims the city was free from cholera. The disease, it is asserted, "is clearly traced to importation by the Javanese, who conveyed it first to Yemen, Gonfundi, and Sait, before giving it to Mecca." The epidemic, it is added, "broke out at Mina on the second day of the sacrifices, and destroyed from 10,000 to 15,000 persons out of the 100,000, or estimated number of pilgrims assembled there."

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\* Op. cit., vol. ii., p. 86.



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## ALEXANDRIA.

TABLE I.—NUMBER of Deaths in Alexandria, according to Daily Official Returns, during the prevalence of Cholera.\*

Date.	From Cholera.	Other Causes.	Total.	Date.	From Cholera.	Other Causes.	Total.
1865.				1865.			
June 12 -	3	44	47	July 5 -	118	39	157
" 13 -	12	38	50	" 6 -	132	44	176
" 14 -	34	30	64	" 7 -	142	35	177
" 15 -	38	17	55	" 8 -	94	29	123
" 16 -	34	29	63	" 9 -	91	31	122
" 17 -	53	28	81	" 10 -	64	37	101
" 18 -	61	30	91	" 11 -	55	44	99
" 19 -	94	21	115	" 12 -	61	33	94
" 20 -	101	51	152	" 13 -	48	33	81
" 21 -	159	42	201	" 14 -	21	41	62
" 22 -	145	36	181	" 15 -	23	45	68
" 23 -	159	39	198	" 16 -	22	45	67
" 24 -	141	37	178	" 17 -	21	33	54
" 25 -	183	50	233	" 18 -	18	37	55
" 26 -	193	48	241	" 19 -	10	—	—
" 27 -	208	50	258	" 20 -	12	—	—
" 28 -	214	45	259	" 21 -	10	—	—
" 29 -	209	43	252	" 22 -	8	—	—
" 30 -	197	40	237	" 23 -	4	—	—
July 1 -	184	25	209	" 24 -	2	—	—
" 2 -	195	23	218	" 25 -	4	—	—
" 3 -	228	37	265	" 26 -	5	—	—
" 4 -	176	40	216	" 27 -	4	—	—

\* "The Times," 28th July 1845.

## CAIRO.

TABLE II.—NUMBER of Deaths in Cairo, according to Daily Official Returns, from the 20th June to the 17th July inclusive.†

Date.	From Cholera.	Other Causes.	Total.	Date.	From Cholera.	Other Causes.	Total.
1865.				1865.			
June 20 -	2	46	48	July 7 -	365	87	452
" 21 -	2	52	54	" 8 -	389	90	479
" 22 -	2	68	70	" 9 -	347	97	444
" 23 -	3	52	55	" 10 -	252	103	355
" 24 -	17	55	72	" 11 -	226	84	310
" 25 -	25	71	96	" 12 -	204	98	302
" 26 -	71	74	145	" 13 -	156	97	253
" 27 -	85	93	178	" 14 -	149	104	253
" 28 -	93	75	168	" 15 -	151	101	252
" 29 -	136	65	201	" 16 -	109	89	198
" 30 -	216	84	300	" 17 -	64	107	171
July 1 -	329	77	406				
" 2 -	306	90	396	Total, from	5,249	2,300	7,549
" 3 -	382	112	494	June 20 to			
" 4 -	457†	84	541	July 17, in-			
" 5 -	356	63	419	clusive -			
" 6 -	355	82	437				

† "The Times," 28th July 1865.

‡ Dr. Colucci-Bey states that the maximum daily mortality was 468, and that it occurred on the 5th July. (See Part III.)

## DAMIETTA.

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TABLE III.—NUMBER of Deaths in Damietta, according to Daily Official Returns, from the 26th June to 9th July inclusive.\*

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Date.	From Cholera.	Other Causes.	Total.	Date.	From Cholera.	Other Causes.	Total.
1865.				1865.			
June 26 -	1	1	2	July 6 -	171	11	182
" 27 -	10	7	17	" 7 -	169	13	182
" 28 -	35	4	39	" 8 -	166	11	177
" 29 -	54	4	58	" 9 -	142	9	151
" 30 -	67	8	75				
July 1 -	93	6	99	Total, from	1,485	103	1,588
" 2 -	107	8	115	June 26 to			
" 3 -	141	7	148	July 9, in-			
" 4 -	157	8	165	clusive -			
" 5 -	172	6	178				

\* "The Times," 22th July 1865.

## SMYRNA.

TABLE IV.—NUMBER of Deaths from cholera in Smyrna, according to Daily Official Returns.

Date.	Greeks.	Jews.	Turks.	Armenians.	Catholics.	Protestants.	Totals.
1865.							
26 June -	1	—	—	—	—	—	1
29 " -	1	—	—	—	—	—	1
3 July -	1	—	—	—	—	—	1
4 " -	1	—	—	—	1	—	2
5 " -	3	—	—	—	—	1	4
6 " -	1	—	—	—	1	—	2
8 " -	2	—	—	—	1	—	3
9 " -	2	—	—	—	—	—	2
10 " -	1	—	—	—	1	—	2
11 " -	—	11	—	—	—	—	11
12 " -	1	13	3	1	—	—	18
13 " -	1	8	—	—	—	—	9
14 " -	1	10	—	—	—	—	11
15 " -	2	26	1	1	1	—	31
16 " -	3	8	1	2	—	—	14
17 " -	1	2	2	1	—	—	6
18 " -	6	21	—	—	1	—	28
19 " -	3	28	1	—	2	1	35
20 " -	3	24	2	1	—	—	30
21† " -	4	16	—	—	—	1	21
22 " -	4	26	1	—	1	—	32
23 " -	6	27	1	1	1	—	36
24 " -	5	25	—	1	—	—	31
25 " -	4	17	10	—	—	—	31
26 " -	2	17	2	—	—	—	21
27 " -	4	14	2	—	—	—	20
28 " -	6	10	1	—	—	—	17
29 " -	11	15	12	1	1	2	42
30 " -	24	20	3	5	2	—	56
31 " -	21	8	16	5	2	—	52

† To these must be added 73 deaths amongst the Jews, from various causes, the bodies being found in the houses which had been deserted.

## APPENDIX.

Table IV.—*cont.*

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

Date.	Greeks.	Jews.	Turks.	Armenians.	Catholics.	Protestants.	Totals.
1865.							
1 August -	12	5	14	3	3	1	38
2 " -	10	7	4	—	5	—	26
3 " -	17	3	7	3	3	—	33
4 " -	20	5	10	—	3	—	38
5 " -	24	4	9	—	4	—	41
6 " -	15	1	8	4	3	1	32
7 " -	20	2	2	2	4	—	30
8 " -	14	—	6	1	2	—	23
9 " -	12	3	2	2	6	1	26
10 " -	11	—	10	2	2	—	25
11 " -	8	—	8	—	3	—	19
12 " -	14	4	6	—	—	1	25
13 " -	4	—	4	—	5	—	13
14 " -	10	3	—	4	6	—	25
15 " -	13	6	—	1	3	—	23
16 " -	6	9	1	1	4	—	21
17 " -	9	—	1	—	2	—	12
18 " -	5	—	1	—	1	—	7
19 " -	8	—	2	—	6	—	16
20 " -	4	2	2	2	2	1	11
21 " -	3	—	2	—	2	—	7
22 " -	3	—	1	—	1	—	5
23 " -	4	—	—	—	2	—	7
24 " -	4	—	—	—	1	—	6
25 " -	3	—	1	—	1	—	5
26 " -	2	2	1	—	—	—	5
27 " -	1	2	—	—	—	—	3
28 " -	2	1	—	—	2	—	5
29 " -	5	1	—	—	1	—	8
30 " -	2	—	—	—	—	—	2
31 " -	2	1	1	2	—	—	6
1 Sept. -	—	—	—	—	1	—	1
2 " -	—	1	1	—	1	—	3
3 " -	1	2	1	—	—	—	4
4 " -	3	1	—	1	—	—	5
5 " -	—	—	—	—	—	—	0
6 " -	—	1	—	—	—	—	1

## DAMASCUS.

The following Return is furnished by Dr. Nicora, Health Officer for France at Damascus :—

TABLE V.—RETURN of Deaths from Cholera in Damascus, 1865.

(N.B.—One-third must be added for deaths not declared.)

Date.	Cholera.	Total Deaths from all Causes.	Date.	Cholera.	Total Deaths from all Causes.
2 August -	1	—	11 August -	4	21
3 " -	—	—	12 " -	6	11
4 " -	—	—	13 " -	16	30
5 " -	3	—	14 " -	15	20
7 " -	3	—	15 " -	25	32
8 " -	3	—	16 " -	41	47
9 " (to 8 P.M.) -	8	—	17 " -	23	27
10 " (No return.) -	—	—	18 " -	34	44



Table V.—*cont.*

APPENDIX.

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

Date.	Cholera.	Total Deaths from all Causes.	Date.	Cholera.	Total Deaths from all Causes.
19 August - -	30	41	12 September - -	59	66
20 " - -	33	46	13 " - -	40	47
21 " - -	40	63	14 " - -	43	53
22 " - -	48	66	15 " - -	48	51
23 " - -	40	53	16 " - -	35	41
24 " - -	49	59	17 " - -	36	47
25 " - -	62	68	18 " - -	38	54
26 " - -	63	65	19 " - -	24	31
27 " - -	63	69	20 " - -	17	30
28 " - -	71	75	21 " - -	18	25
29 " - -	68	76	22 " - -	5	18
30 " - -	51	52	23 " - -	12	21
31 " - -	88	96	24 " - -	9	14
1 September -	93	101	25 " - -	10	24
2 " - -	82	88	26 " - -	7	19
3 " - -	72	77	27 " - -	5	13
4 " - -	82	96	28 " - -	11	17
5 " - -	87	92	29 " - -	—	4
6 " - -	85	90	30 " - -	4	9
7 " - -	77	82	One-third added for deaths not declared	2,254	—
8 " - -	77	83		} 751	—
9 " - -	83	88			—
10 " - -	70	79		3,005	—
11 " - -	55	65			

## BAGDAD.

TABLE VI.—NUMBER of Deaths from Cholera in Bagdad, 1865,  
according to Daily Official Returns.

Date.	Deaths from Cholera.	Date.	Deaths from Cholera.
25 September - -	2	20 October - -	12
26 " - -	2	21 " - -	10
27 " - -	2	22 " - -	11
28 " - -	2	23 " - -	10
29 " - -	5	24 " - -	5
30 " - -	6	25 " - -	8
1 October - -	4	26 " - -	3
2 " - -	8	27 " - -	7
3 " - -	6	28 " - -	1
4 " - -	6	29 " - -	2
5 " - -	3	30 " - -	3
6 " - -	4	31 " - -	4
7 " - -	4	1 November - -	1
8 " - -	10	2 " - -	1
9 " - -	10	3 " - -	2
10 " - -	7	4 " - -	3
11 " - -	5	5 " - -	—
12 " - -	5	6 " - -	3
13 " - -	4	7 " - -	—
14 " - -	8	8 " - -	1
15 " - -	4	9 " - -	1
16 " - -	11	10 " - -	2
17 " - -	7	11 " - -	1
18 " - -	9		
19 " - -	7	Total - -	233

## APPENDIX.

## FILURINA.

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

TABLE VII.—NUMBER of Attacks and Deaths from Cholera and Choleraic Diarrhœa during the months of October and November, 1865, in Filurina.

Date.		Cholera.				Choleraic Diarrhœa.				Totals.	
		Males.		Females.		Males.		Females.			
1865.		Atks.	Dths.	Atks.	Dths.	Atks.	Dths.	Atks.	Dths.	Atks.	Dths.
26	October	4	3	9	8	—	—	—	—	13	<div><div>1</div><div>2</div><div>1</div><div>4</div><div>3</div></div>
27											
28											
29											
30											
31											
1	November	—	1	3	—	—	—	—	—	3	1
2	"	—	—	—	1	—	—	6	1	6	2
3	"	1	—	—	—	2	—	10	1	13	1
4	"	1	1	—	—	—	—	2	1	3	1
5	"	1	—	—	—	3	—	—	—	4	—
6	"	1	—	—	1	—	—	4	—	5	1
7	"	1	—	—	—	—	—	6	—	7	—
8	"	1	—	—	—	—	1	3	—	4	1
9	"	—	—	—	—	—	—	—	—	—	—
10	"	—	—	—	—	1	1	—	—	1	1
11	"	—	—	—	—	—	—	2	—	2	—
Total -		10	4	12	10	6	2	33	3	61	19

Since the 11th, a few isolated attacks of choleraic diarrhœa had occurred ; but no cases were reported during the week ending the 22nd November.

## MALTA.

TABLE VIII.—NUMBER of Attacks and Deaths from Cholera among the Garrison of Malta, 1865.\*

Date.	Men.		Women.		Children.	
	Attacks	Deaths.	Attacks	Deaths.	Attacks	Deaths.
22 June to 14 July - -	5	4	11	5	4	2
15 July " 21 " - -	7	4	2	—	—	—
22 " " 28 " - -	23	18	12	4	1	—
29 " " 4 August - -	12	10	5	8	4	3
5 Aug. " 11 " - -	14	8	4	3	2	3
12 " " 18 " - -	12	5	6	5	6	4
19 " " 25 " - -	6	7	2	1	1	1
26 " " 1 Sept. - -	8	6	3	3	2	1
2 Sept. " 8 " - -	12	8	2	1	2	2
9 " " 15 " - -	7	4	—	—	—	—
16 " " 22 " - -	8	5	—	—	—	—
23 " " 29 " - -	5	4	4	1	—	—
30 " " 6 Oct. - -	1	—	—	1	—	—
7 " " 13 " - -	1	1	—	—	—	—
14 " " 20 " - -	—	—	—	—	—	—
21 " " 27 " - -	4	—	1	1	2	—
28 " " 3 Nov. - -	2	3	1	1	1	1
Totals -	127	87	53	34	25	17

Average strength of garrison during the outbreak :

Men, 5904 ; Women, 476 ; Children, 774.

\* From returns made to the Army Medical Department.

TABLE IX.—NUMBER of Attacks and Deaths among the Civil Population of Malta, 1865.\*

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

Date.	Attacks.	Deaths.	Date.	Attacks.	Deaths.
Previous to 18 July	74	70	11 Sept.	12	11
18 July	4	3	12 "	17	9
19 "	3	1	13 "	21	10
20 "	8	3	14 "	15	16
21 "	7	4	15 "	25	14
22 "	17	8	16 "	21	13
23 "	8	4	17 "	33	20
24 "	6	3	18 "	25	16
25 "	10	7	19 "	35	22
26 "	16	6	20 "	13	18
27 "	22	9	21 "	21	18
28 "	37	14	22 "	19	10
29 "	31	15	23 "	27	10
30 "	23	12	24 "	14	14
31 "	25	17	25 "	8	13
1 Aug.	33	18	26 "	7	Deaths not re- turned.
2 "	29	22	27 "	7	
3 "	31	19	28 "	3	
4 "	22	17	29 "	7	
5 "	42	27	30 "	12	5
6 "	51	33	1 Oct.	9	4
7 "	42	23	2 "	7	10
8 "	62	22	3 "	7	4
9 "	47	25	4 "	0	6
10 "	70	30	5 "	7	7
11 "	40	26	6 "	4	4
12 "	43	24	7 "	6	6
13 "	61	33	8 "	1	0
14 "	46	32	9 "	5	1
15 "	47	31	10 "	3	3
16 "	61	33	11 "	6	0
17 "	46	29	12 "	8	6
18 "	44	25	13 "	3	1
19 "	37	28	14 "	3	3
20 "	46	24	15 "	2	0
21 "	32	19	16 "	4	0
22 "	40	19	17 "	6	2
23 "	28	22	18 "	7	3
24 "	35	23	19 "	2	1
25 "	45	28	20 "	3	4
26 "	34	17	21 "	5	5
27 "	46	24	22 "	4	3
28 "	31	18	23 "	0	4
29 "	38	28	24 "	No Returns.	
30 "	39	23	25 "		
31 "	40	29	26 "	1	2
1 Sept.	45	25	27 "	1	2
2 "	18	9	28 "	0	1
3 "	28	23	29 "	2	1
4 "	28	13	30 "	2	1
5 "	20	17	31 "	1	1
6 "	16	12	1 Nov.	2	2
7 "	14	7			
8 "	15	10			
9 "	19	9	Totals	2,203	1,371
10 "	17	14			

\* "The Times" Correspondent.



## APPENDIX.

## ANCONA.

No. 13.

On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

TABLE X.—NUMBER of Attacks and Deaths from Cholera in Ancona according to the Daily Official Returns.\*

1865.				Ancona (City).		Ancona (Environs).		Total.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From	8 July to	24 July	-	74	30	—	—	74	30
"	24 "	25 "	-	17	6	—	—	17	6
"	25 "	26 "	-	8	5	—	—	8	5
"	26 "	27 "	-	12	2	8	2	20	4
"	27 "	28 "	-	14	5	19	6	23	11
"	28 "	29 "	-	23	6	18	7	41	13
"	29 "	30 "	-	45	15	11	11	56	26
"	30 "	31 "	-	39	21	13	7	52	28
"	31 "	1 Aug.	-	47	20	11	2	58	22
"	1 Aug. to	2 "	-	57	26	35	14	92	40
"	2 "	3 "	-	61	26	18	7	79	33
"	3 "	4 "	-	85	34	—	—	85	34
"	4 "	5 "	-	79	30	26	5	115	35
"	5 "	6 "	-	145	46	20	17	165	63
"	6 "	7 "	-	173	80	34	22	207	102
"	7 "	8 "	-	111	70	36	13	147	83
"	8 "	9 "	-	67	50	32	9	99	59
"	9 "	10 "	-	66	53	26	7	92	62
"	10 "	11 "	-	57	37	20	2	77	39
"	11 "	12 "	-	48	66	14	1	62	67
"	12 "	13 "	-	44	41	15	3	59	44
"	13 "	14 "	-	45	41	20	19	65	60
"	14 "	15 "	-	46	50	18	8	64	58
"	15 "	16 "	-	35	24	9	4	44	28
"	16 "	17 "	-	36	28	6	4	42	32
"	17 "	18 "	-	30	33	9	4	39	37
"	18 "	19 "	-	22	29	16	5	38	34
"	19 "	20 "	-	20	17	8	6	28	23
"	20 "	21 "	-	15	27	12	6	27	33
"	21 "	22 "	-	19	21	7	7	26	28
"	22 "	23 "	-	14	15	7	6	21	21
"	23 "	24 "	-	8	14	10	6	18	20
"	24 "	25 "	-	15	8	10	3	25	11
"	25 "	26 "	-	9	6	18	4	27	10
"	26 "	27 "	-	18	9	6	5	24	14
"	27 "	28 "	-	11	7	27	9	33	16
"	28 "	29 "	-	9	6	8	10	17	16
"	29 "	30 "	-	8	4	25	6	33	10
"	30 "	31 "	-	6	8	20	9	26	17
"	31 "	1 Sept.	-	4	2	13	5	17	7
"	1 Sept. to	2 "	-	1	2	10	4	11	6
"	2 "	3 "	-	4	2	7	5	11	7
"	3 "	4 "	-	4	3	9	3	13	6
"	4 "	5 "	-	3	1	1	1	4	2
"	5 "	6 "	-	2	1	3	6	5	7
"	6 "	7 "	-	2	4	1	1	3	5
"	7 "	8 "	-	2	1	—	—	2	1
"	8 "	9 "	-	1	—	—	—	1	—
"	9 "	10 "	-	4	—	1	1	5	1
"	10 "	11 "	-	1	—	—	—	1	—
"	11 "	12 "	-	—	—	—	—	—	—
Total				1,666	1,034	638	282	2,304	1,316

\* "Gazetta Medica Italiana Lombardia," 28 Agosto, 25 Settembre, 1865.

## GIBRALTAR.

APPENDIX.

TABLE XI.—NUMBER of Deaths from Cholera in Gibraltar, 1865, according to Returns furnished to the War Office.

No. 13.  
On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.

1865.	Cases.				Deaths.			
	Military.	Civil.	Convicts.	Total.	Military.	Civil.	Convicts.	Total.
18 July	1	—	—	1	—	—	—	—
19 "	—	—	—	—	1	—	—	1
31 "	2	—	—	2	1	—	—	1
1 August	—	—	—	—	1	—	—	—
3 "	2	—	—	2	—	—	—	—
4 "	1	—	—	1	2	—	—	2
5 "	1	7	—	8	—	1	—	1
6 "	3	13	—	16	5	7	—	12
7 "	1	12	—	13	—	4	1	5
8 "	2	11	—	13	2	9	—	11
9 "	2	18	—	20	—	3	1	4
10 and 11	4	34	—	38	4	17	5	26
12 "	5	32	—	37	1	12	1	14
13 "	7	50	—	57	2	18	3	23
14 "	5	25	—	30	2	9	2	13
15 "	1	35	—	36	3	9	4	16
16 "	—	—	—	—	—	—	—	—
17 }	—	—	—	—	3	9	—	12
18 "								
19 "								
20 "								
21 "								
22 }								
23 "	2	7	—	9	2	4	—	6
24 "	—	7	—	7	—	3	—	3
25 "	—	7	—	7	—	2	—	2
26 "	1	7	—	8	1	2	—	3
27 and 28	1	13	—	14	1	8	—	9
29 "	—	3	—	3	—	3	—	3
30 "	1	4	—	5	1	3	—	4
31 "	2	—	—	2	1	—	—	1
1 September	—	4	—	4	—	1	—	1
2 "	—	4	—	4	—	2	—	2
3 and 4	2	9	—	9	1	3	—	4
5 "	1	7	—	—	—	1	Includes deaths of 2 convicts.	1
6 "	3	13	—	—	5	7		12
7 "	1	12	—	—	—	5		5
8 "	2	12	—	14	1	5	—	6
9 "	2	17	—	19	2	4	—	6
10 and 11	4	31	—	35	4	12	5	21
12 "	5	29	—	32	1	11	1	13
13 "	7	47	—	55	2	16	3	21
14 "	5	23	—	28	3	15	2	20
15 "	1	33	—	34	3	10	4	17
16 "	6	44	—	42	1	15	4	20
17 and 18	4	59	—	63	4	34	1	39
19 "	4	34	—	38	1	19	—	20
20 "	4	24	—	28	1	12	—	13
21 "	7	22	—	29	5	9	3	17
22 "	2	30	—	32	—	16	—	16
23 "	3	30	—	33	5	10	3	18

Table XI.—*cont.*

APPENDIX.  
No. 13.  
*On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe.*

1865.	Cases.				Deaths.			
	Military.	Civil.	Convicts.	Total.	Military.	Civil.	Convicts.	Total.
24* and 25 September -	8	50	12	70	4	31	7	42
26 " - - - -	2	21	6	29	1	12	1	14
27 " - - - -	7	10	4	21	3	5	4	12
28 " - - - -	1	10	2	13	3	7	2	12
29 " - - - -	7	7	1	15	2	7	1	10
30 " - - - -	3	8	2	13	1	1	2	4
1 and 2 October -	6	22	2	30	3	15	2	20
3 " - - - -	2	10	1	13	1	5	1	7
4 " - - - -	2	11	—	13	3	5	—	8
5 " - - - -	7	13	1	21	2	9	—	11
6 " - - - -	4	12	1	17	4	3	1	8
7 " - - - -	2	12	—	14	1	10	—	11
8 and 9 " - - -	6	21	3	30	4	14	3	21
10 " - - - -	1	11	—	12	1	5	—	6
11 " - - - -	1	12	—	13	—	1	—	1
12 " - - - -	1	10	—	11	—	5	—	5
13 " - - - -	7	6	—	13	1	4	—	5
14 " - - - -	—	9	—	9	1	6	—	7
15 and 16 " - -	1	12	—	13	1	10	—	11
17 " - - - -	—	5	—	5	2	1	—	3
18 " - - - -	—	5	—	5	1	3	—	4
19 " - - - -	1	2	—	3	1	3	—	4
20 " - - - -	—	3	—	3	2	—	—	2
21 " - - - -	—	—	—	—	—	1	—	1
22 and 23 " - -	—	5	1	6	—	4	1	5
24 " - - - -	—	—	—	—	—	—	—	—
25 " - - - -	1	—	—	1	1	1	—	2
26 " - - - -	—	—	—	—	—	—	—	—
27 " - - - -	—	—	—	—	—	—	—	—
28 " - - - -	—	1	—	1	—	—	—	—
Totals from the com- mencement of out- break according to the official summary }	158	821	82	1,061	101	416	57	574

\* Prior to this date the deaths only of convicts were returned.

## MARSEILLE.

TABLE XII.—NUMBER of Deaths from Cholera in Marseille, from the 23rd July to the 23rd October (exclusive of the 15th and 16th October).

Deaths from Cholera.		Deaths from Cholera.	
July 23rd to 29th -	20	September 17th to 23rd -	282
July 30th to August 5th -	45	September 24th to 30th -	186
August 6th to 12th -	40	October 1st to 7th -	91
August 13th to 19th -	108	October 8th to 14th -	62
August 20th to 26th -	167	October 17th to 23rd -	46
August 27th to Sept. 2nd -	201		
September 3rd to 9th -	231	Total -	1,847
September 10th to 16th -	309		



## TOULON.

TABLE XIII.—NUMBER of Deaths from Cholera in Toulon, according to daily Returns, from the 27th August to the 22nd October 1865.

Deaths from Cholera.			Deaths from Cholera.		
August 27th	-	1	September 26th	-	81
" 28th	-	2	" 27th	-	53
" 29th	-	0	" 28th	-	62
" 30th	-	1	" 29th	-	62
" 31st	-	1	" 30th	-	41
September 1st	-	1	October 1st	-	40
" 2nd	-	0	" 2nd	-	27
" 3rd	-	2	" 3rd	-	28
" 4th	-	2	" 4th	-	14
" 5th	-	7	" 5th	-	15
" 6th	-	10	" 6th	-	26
" 7th	-	4	" 7th	-	9
" 8th	-	9	" 8th	-	7
" 9th	-	12	" 9th	-	7
" 10th	-	3	" 10th	-	9
" 11th	-	10	" 11th	-	10
" 12th	-	27	" 12th	-	7
" 13th	-	16	" 13th	-	14
" 14th	-	16	" 14th	-	7
" 15th	-	37	" 15th	-	no return
" 16th	-	49	" 16th	-	7
" 17th	-	76	" 17th	-	6
" 18th	-	67	" 18th	-	6
" 19th	-	50	" 19th	-	8
" 20th	-	49	" 20th	-	8
" 21st	-	38	" 21st	-	5
" 22nd	-	61	" 22nd	-	7
" 23rd	-	61			
" 24th	-	59	Total	-	1,282
" 25th	-	67			

## APPENDIX.

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*On the present  
diffusion  
of Cholera in  
Europe, by  
Mr. Radcliffe*

APPENDIX. No. 14.—REPORT by PROFESSOR PARKES, M.D., F. R. S., on the OUT-  
BREAK of CHOLERA in and about SOUTHAMPTON in September  
and October 1865.  
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*at Southampton,*  
*by Dr. Parkes.*

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At the end of September and during October 1865 about 60 cases of a disease, characterized in various degrees by the following symptoms, occurred in Southampton and its neighbourhood:—More or less vomiting and purging, the discharges being very watery, and often quite rice-water in appearance; then violent cramps in the muscles of the abdomen, arms, and legs; intense thirst; rapid lessening of the force of the heart, with, in some cases, almost complete pulselessness; diminution of animal heat, most marked in the mouth and the extremities; shallow and often difficult respiration; hoarse and then whispering voice; sinking of the eyes and appearance of dark areolæ round them; shrinking of the skin of the hands and feet; general more or less livid or cyanotic discoloration and loss of elasticity of the skin; suppression of urine.

In most, if not in all, of those who recovered, a state of febrile prostration followed on the symptoms just mentioned; viz., moderate elevation of temperature, great feeling of prostration, very feeble pulse, rather dusky skin, and injected eyes, occasional vomiting, and loose greenish and brown stools. In one case a papular eruption was noticed. The urine, after being suppressed for many hours, was passed in

moderate quantity ; it was only, I believe, examined in one case, and was then albuminous, and deposited great quantities of renal and bladder epithelium.

The medical practitioners in Southampton agree that this disease was Asiatic cholera, and was different and (in the opinion of most) distinguishable from cases of common English, summer, or autumnal cholera, as ordinarily seen in Southampton. Evidence on this point will be subsequently given.

There occurred altogether between the 22d September and the 4th November 60 cases of this disease in Southampton and its neighbourhood. In addition, two uncertain cases were seen in August, and three or four others in October or early in November, which I have not included, as the diagnosis is not certain. All the 60 cases were seen by competent practitioners, who entertain no doubt whatever of the correctness of the diagnosis.

Of these 60 cases there were—

Men	-	-	27	=	per cent. 45
Women	-	-	33	=	„ 55
Total	-	-	60		100

Of the 27 men	16	died =	per cent. 59·26
Of the 33 women	19	died =	„ 57·58
Total 60	35	=	58·33

The average age of all the cases was 31·76 years.

„	„	the fatal cases	30·84	„
„	„	the recoveries	33·25	„

The average duration of all the fatal cases,

when the periods were certain, was	-	51·67	hours ;
The shortest duration was	-	12	„
The longest	„	260	„

Excluding two lingering cases of 260 and 144 hours, the mean duration was 40·11 hours.

This is probably about 12 hours longer than the average duration of fatal cases in India, and arises from the fact that a larger number of cases died after reaction, and a smaller number died during collapse, than would have been the case in India.

This disease occurred in several localities separate from each other. The following table contains the whole of the cases known to have occurred in all the districts. The table is arranged in such a way as to give a general view of the chronology of the outbreaks in the different localities.

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TABLE of DATES and DISTRICTS showing the CASES diagnosed or registered as  
CHOLERA in SOUTHAMPTON and its NEIGHBOURHOOD.

Dates of the earliest decided Symptoms.	LOCALITIES.						Age.	Result.
	Southampton in Limits of Local Board of Health.	St. Denys and South Stoneham, Suburbs of Southampton.	Freemantle, Suburb of Southampton.	Weston Com- mon, Country District, 2 miles from Southampton.	Bitterne, Coun- try Village, 2 miles from Southampton.	Itchen Village, East Side of Itchen River, ½ mile from Southampton.		
Sept. 22nd	James Rose	-	-	Henry Hill	-	-	43	*Died.
" 23rd	-	-	-	George Hill	-	-	18	*Cured.
" 26th	-	-	-	Harriet Hill	-	-	44	Died.
" 27th	-	-	-	-	Henry Stanley	-	19	Died.
" 28th	Henry Westcott	-	-	-	James Stanley	-	56	†Died.
" 28th	-	-	-	-	-	-	14	§Cured.
" 29th	Prise. Hembery	-	-	-	Emma Vare	-	62	Died.
" 29th	-	-	-	-	-	-	28	†Died.
" 30th	Emma Fulton	-	-	-	-	-	41	*Died.
" "	J. H. Reynolds	-	-	-	-	-	60	Cured.
" "	-	-	-	-	-	-	33	Died.
" "	-	-	-	Sarah Rapley	Harriet King	-	38	**Cured.
" "	-	-	-	-	-	-	34	††Cured.
Oct. 1st	Sarah French	-	-	-	Vashti Butt	-	22	Cured.
" 2nd	-	-	-	Arthur Veale	-	-	29	Cured.
" 3rd	Elizabeth Moody	-	-	-	-	-	63	Died.
" 4th	Jane Osnam	-	-	-	-	-	15	††Died.
" 4th	Ellen Alice Mare	-	-	-	-	-	20	Cured.
" 5th	-	-	-	-	-	-	34	Died.
" 5th	Julia Burton	-	-	-	-	Lewis Ground- sell.	10m	Died.
" 5th	George Cleverly	-	-	-	-	-	48	Died.
" 5th	Mary Dawes	-	-	-	George Lake	-	49	Cured.
" 6th	-	-	-	Elizabeth Lock	-	-	19	Cured.
" 6th	Eliza Richards	-	-	-	-	-	73	§§Died.
" 6th	Ellen Sims	-	-	-	-	-	46	Cured.
" 6th	Elizabeth Lee	-	-	-	-	-	2½	Cured.
" 6th	Eliza Thomas	-	-	-	-	-	16	Cured.
" 7th	William Verdy	-	-	-	-	-	38	Cured.
" 7th	Walter Poulton	-	-	-	-	-	52	Cured.
" 8th	-	-	-	-	-	-	48	Cured.
" 8th	-	George Gan- naway.	-	-	-	-	—	Cured.
" 8th	John Smith	-	-	-	-	-	—	Cured.
" 10th	Jane Parry	-	-	-	-	-	11	Cured.
" 10th	Charlotte Moore	-	-	-	-	-	50	Died.
" 10th	-	Elizabeth Page.	-	-	-	-	26	Died.
" 11th	Alfred Jeffries	-	-	-	-	-	36	Died.
" 12th	James Scannell	-	-	-	-	-	57	Cured.
" 12th	Jane Jones	-	-	-	-	-	5	Cured.
" 12th	Jessie Sherlock	-	-	-	-	-	3	Died.
" 13th	Sarah Burges	-	-	-	-	-	3	Died.
" 13th	John W. Hopper	-	-	-	-	-	20	Died.
" 14th	-	-	Samuel Bes- sent.	-	-	-	60	Died.
" 14th	Mary Englefield	-	-	-	-	-	53	Cured.
" 15th	James Allen	-	-	-	-	-	—	Cured.
" 15th	-	-	-	-	-	Jurd	10	Died.
" 17th	-	-	Mary Payne	-	-	Jurd	4	Died.
" 18th	-	-	William Payne	-	-	-	4	Died.
" 19th	-	-	F. Payne	-	-	-	7	Died.
" 21st	-	-	-	-	-	-	16m	Died.
" 21st	-	-	Mary Anne Bowers.	-	-	John Unwin	45	Cured.
" 21st	-	-	-	-	-	-	44	Died.
" 21st	Francis Cooper	-	-	-	-	-	58	Died.
" 22nd	-	-	Mary Anne Clements.	-	-	-	16	Died.
" 27th	Thomas Pounds	-	-	-	-	-	29	Died.
" 27th	-	-	Anne Clements	-	-	-	41	Died.
" 31st	-	-	-	-	-	Harry Phillips	2½	Died.
Nov. 1st	-	-	Ann Baker	-	-	-	49	Died.
" 2nd	-	-	-	-	-	Emma Phillips	4½	Died.
" 4th	-	-	T. S.	-	-	-	45	Cured.

\* Diarrhoea on 17th September.

† Diarrhoea on 21st September.

‡ Diarrhoea on 24th.

§ Diarrhoea since 17th.

|| Diarrhoea on 27th.

¶ Died from exhaustion after rallying.

\*\* Diarrhoea on 29th.

†† This patient lived at Sholing, near, but not on, Weston Common.

‡‡ Certified as "Cholera Morbus" (English).

§§ Rallied, and died from exhaustion.

||| Daughter of George Gannaway, whom she nursed.

By the term Southampton is meant, in this Report, the district under the control of the Southampton Local Board of Health; it includes the largest and most crowded part of Southampton. St. Denys and Freemantle are suburbs to the north and west within the borough of Southampton, but not under the Local Board of Health. Itchen is a fishing village, separated from Southampton by the Itchen River, on the south bank of which it lies. Bitterne is a village about two miles from Southampton, and also separated from it by the Itchen River. Weston Common, or Botany Bay, is a small hamlet on a common equidistant and about one and a half miles from Bitterne and Itchen, and is likewise separated from Southampton by the Itchen River.

Sholing Common is close to Weston Common.

I propose to give first an account of the outbreaks in each locality, including such discussion on the origin as can be thus conveniently made, and subsequently to make a general statement, embracing all the facts.

## CHAPTER I.

On the several OUTBREAKS of the DISEASE in different LOCALITIES.

### § 1.

#### I.—*Weston Common.*

As this outbreak seems to have been the earliest, I have placed it first.

A row of scattered cottages, running nearly north and south, stands on the slope of a hollow, on a healthy, breezy common, 2,354 yards from the Itchen River, 2,376 yards from the nearest point of Southampton Water, and with an elevation of about 120 feet above the sea. The soil is sandy and gravelly, with clay about 8 to 10 feet below the surface. The population of the hamlet consists of about 244 persons, living in 54 scattered houses. The people are poor, but the whole district has always been considered very healthy.; there is no malaria.

It will be seen from the table, that five cases occurred here and three died. Of these five cases, three and two deaths occurred in one family of the name of Hill. A sixth case occurred in a neighbouring common (Sholing), which is also studded with detached cottages of the same class as at Weston Common.

*Case 1.*—This patient was seen by Dr. Laing, (assistant to Dr. Orsborn of Bitterne). I did not see him until the attack was passing off. The following account is made up from Dr. Laing's account, and his own and his mother's statement.

Henry Hill, æt. 18.—On Thursday 21st September he first had "bowel complaint;" he cannot say how many stools; motions watery, with much griping.

On Friday 22nd September, same symptoms.

On Saturday 23rd he gave up work. On this day there was frequent vomiting, and there were cramps all Saturday night.

On Sunday, vomiting, purging, and cramps in the extremities all day. He was restless and threw off the clothes; his mother found the skin cold; it was not clammy, and did not alter in colour, except there was a little blueness of the hands. The eyes were deeply sunken, to use the mother's phrase "like a dead corpse." There was intense thirst. He did not himself feel cold.

On Monday the 25th there were still vomiting, purging, and cramps in the legs, thighs, and arms. Is quite positive that he passed his

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urine every day. The voice was good throughout. The motions were watery like "pea soup," yellowish.

Seen by me on Thursday, September 28th. In the stage of consecutive fever, rather flushed; eyes bright, yet injected; cheeks rather darkly flushed; tongue red, glazed, smooth, denuded of the papillæ filiformes, papillæ fungiformes very much enlarged. Some purging still; no cramps, or vomiting. Temperature 100° F. Thirst still. Feels much better. Has passed urine. He recovered, and in four or five days was convalescent.

His mother removed all the evacuations at once and threw them not into the privy, but on the dust heap just outside the house. During his illness, his father, sister, and mother were in the same bedroom with him, or in the adjoining sitting room.

Had this case occurred by itself, it is probable that it would have been regarded simply as one of severe English cholera. But the two succeeding cases in the father and sister of this boy gave it significance.

The father of this boy was a bricklayer, a very steady man, respected by every one, a teetotaller, and in good work. At the time he was at work in Southampton, but slept at home every night, and took his dinner with him into Southampton. He was employed in building a house in a healthy part of Southampton (Clifford Crescent), and on the day of his attack was occupied in the morning in finishing the chimney, and in the afternoon was engaged in lime-washing the front area of a house in a healthy and good part of Southampton (Richmond Terrace), where there had been and was afterwards no illness of any kind.

The sister of the boy, a young woman of 19, also slept at home, but worked during the day at a house on Sholing Common, about half a mile from Weston Common, where she also took her meals. She was a teetotaller, and a very well-conducted respectable person.

Now the point of importance is, that the father and daughter, thus working in different localities, and separated during the day, were attacked on the same day, and almost at the same hour with a disease identical in all its characters, and which in each case was fatal in 24 hours from the period of the first symptom.

This seems to render it impossible that the cause of this fatal disease should have been taken either in Southampton, where the daughter had not been, or at Sholing where the father had not been. The cause must have existed at the place where the two patients had both been, viz., at their own house.

The patients were seen by Dr. Laing shortly before their deaths, and on being reported by him to Dr. Orsborn, were at once pronounced by that gentleman to have died of cholera. I only saw the patients after death, and heard all the circumstances from the widow.

*Case 2.*—George Hill, æt. 44, father of Case I. (Account given by his widow.)

Was quite well on Tuesday morning, September 26th. Is believed by his fellow workmen to have been perfectly well all day. He felt ill when coming from work at half past 5 on Tuesday, September 26th. Was purged twice after reaching his house; no pain; took some diarrhœa mixture; went a third time to the privy, and then again almost immediately. Felt sick about 8 o'clock, p.m., and after this vomiting and purging continued till 9 p.m., when he had cramps. His feet "were cold as stones," his eyes became sunk in his head, and were surrounded with dark circles; soon all the body felt cold; at midnight his voice was lost.

All Wednesday, September 27th, there was more or less purging,



unconsciously, in bed. He lay torpid the whole day, merely lifting his hand occasionally to show he had cramps. Died at 5 p.m. on Wednesday.

Seen by me 24 hours after death. Hands much shrivelled, fingers crooked, eyes deeply sunken; intense rigor mortis.

*Case 3.*—Harriet Hill, æt. 19. (Sister of Case 1.; daughter of Case 2.) Account given by her mother:—Was taken ill with purging, on Tuesday, about 6 or 7 o'clock in the afternoon. She was then at work at a house on Sholing Common, where she had been all the week; returning home to sleep. Returned home at 9 p.m., and was violently purged on the road; great vomiting, purging, and cramps; eyes sunken and voice altered, but not so much as her father; skin cold. Died at half-past 2 p.m. on Wednesday. (About 20 to 21 hours' illness.)

Seen 24 hours after death. Eyes sunken; hands dark, livid, and shrivelled; intense rigor mortis.

Whatever name is given to the disease nothing can lessen the interest and striking character of this occurrence. It must have been some most intensely powerful action which could thus kill a healthy man and a healthy young woman in 24 hours. The suddenness and fatality are like the effects of the most virulent poisons.

What then was the cause?

Taking the facts as they stand, and without giving a name to the disease, I shall endeavour to see if any possible origin can be traced.

I believe I am perfectly justified, for the reason just given, in localizing the cause at Weston Common.

But other reasons can be given for this. In Southampton there was no disease like it, except the case of Rose, on the 22nd September. George Hill was engaged on no kind of unhealthy work, or was in any way exposed to any unwholesome exhalations; he took nothing whatever to eat or drink in Southampton, as he had his dinner from his home, and never drank the Southampton water. He had not been near the docks or any shipping, or near any sick person in Southampton.

At Sholing, where his daughter worked, all the other persons in the house were and continued healthy.

The cause must then have been at their own residence. What could be made out there?

The house itself is detached and standing in a sloping garden, on a dry and gravelly soil. It is an old thatched cottage, with two small low rooms, in which a family of five or six persons were crowded.

It is clean and well kept, and there are no common nuisances about it except a pigsty, 12 feet from the door.

There is a small ash heap at one end, and at some distance (40 feet) from the house, a privy, which was not offensive.

In fact, with the exception of the small rooms, there was nothing particularly objectionable, and there were many houses in the neighbourhood in far less favourable sanitary conditions. The house has always been considered very healthy. The wife informed me that neither she nor her husband or children had ever had a "pennyworth of medicine."

The drinking water was naturally at first suspected, more particularly as the father made a point of drinking water no where but at home. The water is taken from a small shallow well, or, rather, a little reservoir, three feet deep, into which a spring constantly runs, and from which an overflow pipe leads to a neighbouring brook. The water has a local reputation for excellence, and was and is used by all the neighbourhood; at least nine or ten cottages, holding altogether 40 persons at the time, were using it; none of whom were ill except the Hills.

Some water was obtained for analysis on the 28th September. At

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that time, as shown by the analysis, it was perfectly pure ; and it was stated, that at no previous time had there been any taste or smell, or any noticeable change in it. The amount of water given by the spring had not been perceptibly changed by the dry weather.

*Analysis of the Weston Common Water, September 28th 1865.*

	Grains per Gallon.
Total solids - - - - -	7
Organic matter - - - - -	0.791
Chloride of sodium - - - - -	4.09
Hardness—Clark's scale (1°=1 grain of carbonate of lime per gallon) - - - - -	3.5
Grains of oxygen required to oxidize organic matter per gallon, at a temp. of 140° Fah. - - - - -	0.0395

The water was perfectly clear without microscopic sediment.

It appears, therefore, certain that neither father nor daughter got the disease from the drinking water ; as the father had taken no other water and had the same disease as the daughter, it is clear that the daughter did not get it from drinking bad water at her place of work. In addition to which there was no cholera or illness of any kind at her place of work.

Was the fatal disease in these two persons then attributable to food ?

Now the father and daughter and son all lived on different food ; the son and daughter at their respective work places, the father at home. If food caused the disease, it could have been only that taken on Sunday when they were all at home. But on that day it cannot be discovered that anything unusual was taken ; a little salt pork, which did not disagree with the mother and another son, was the chief food, and the first symptoms of illness, in the father and daughter, were more than 48 hours after taking it. Besides, the boy, who suffered evidently from the same disease, was ill on that Sunday, and took no food at all.

We may then, I believe, safely exclude food as a possible cause.

But if, then, there were no sufficient local unhygienic conditions, no impure water or bad food, what caused the deaths of these two persons ?

Was there some general atmospheric condition ?

Those who attach weight to the hypothesis of an epidemic constitution, *i.e.*, of some as yet unrecognized but general condition of the atmosphere being the cause of cholera, either *per se* or in combination with local conditions of impurity, may consider this the most probable explanation, especially as, at the same time, a case of cholera occurred in Southampton, and as, shortly afterwards, other cases occurred at Bitterne. But there are certainly some serious difficulties. Why should an epidemic constitution attack those two or three people out of the large number who lived near them ? Why should it have selected a common and a house, which certainly could not be called in a bad sanitary condition, and persons well fed, well cared for, and temperate ?

If a special bodily peculiarity or predisposition is assumed in their cases, we have to add to the hypothesis of the state of the atmosphere, of which we have no idea, another hypothesis of a state of body, of the real existence of which we have no evidence whatever.

But this question must come under consideration hereafter.

Leaving for the present this question "of an epidemic constitution," another possible cause suggests itself. The cases of the father and daughter were clearly posterior in point of time to that of the son.

The son's case was less marked, but still its main features were the same. Did the father and sister derive their disease from the son ?

In favour of such a view we have the fact that the son was profusely vomited and purged in the room where the father and sister were either sleeping or close to which they lived; that all the sheets and bedding were wet with the discharges which soon soiled all the small stock of linen; that the father and sister must have been particularly exposed on Sunday, when they were at home all day, and if they took the disease on that day, the incubative period would accord with the usual rule, as they were attacked on Tuesday.

Considering now that the cause of the disease must have been in the house, and yet that the ordinary household conditions of air, water, and food, were quite inadequate to produce such a disease, the hypothesis that the extraordinary condition of a person ill in the house with a similar disease was the cause of the disease in these two persons seems much more probable than that they suffered from some mysterious epidemic constitution.

But if this be allowed, it only throws the inquiry one step back. How did the first case, the son, get the disease?

I must at once allow that the strictest inquiry has failed in tracing this.

This boy, Henry Hill, slept at home, but worked and lived at a carpenter's and coal merchant, about 300 to 400 yards away. He lived with this family, had the same food, and drank the water of their wells (they had two) or the water at home. He distinctly remembered that for at least a week prior to his attack he had only drunk water at three places; at his own home, at his employers, and at a running stream at Hedge End near Botley.

The analysis of the water at his living place has already been given; at his working place it is as follows:—It was procured on the 28th September.

				Grains per gallon.	
				1st Well.	2nd Well.
Mineral solids	-	-	-	7	9.1
Volatile solids	-	-	-	5.6	4.9
Total solids				12.6	14
Chloride of sodium	-	-	-	2.863	2.863
Hardness—Clark's scale (1°=1 grain of carbonate of lime per gallon)	-	-	-	3.1	5.95
Grains of oxygen required per gallon to oxidize organic matter, at 140° Fah.				0.008	0.09

Into the 2nd of these wells a little lime had been thrown with the idea of improving the water before I obtained the water for analysis. No sample has been procured of the water at Hedge End, but I was assured that it was a clear and sparkling stream coming from an uncultivated moor, and removed from habitations or any likelihood of contamination; the boy found the water good; it was some days before his attack that he took it, and could not conceive it could have had anything to do with it.

We may exclude the possible production by impure water and also by food, as none of the family where he worked, and took his meals, were at all ill.

I visited the place where he worked; it is a small low cottage, but nothing could be found likely to cause his attack, and every one there had been and remained perfectly well.

For three weeks before his attack the boy had been employed in driving a cart with coals about the country. He had been to Itchen,

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Bursledon, Botley, Edge End, and Sholing, but not to Southampton or Bitterne, and at various places he had helped to carry the coals into the house or yard.

Very careful inquiries were therefore made to see if he had been near any sick person, or had been otherwise exposed. No such exposure could be traced; he was not aware he had been in any house where there were sick of any kind, and had never noticed any disagreeable smell. He never in any of his journeys took anything to eat or drink, except the single draught of water at Edge End.

In fact no clue whatever could be obtained to the origin of his attack. Still in his business he was evidently more exposed to chances of infection than his father or sister were; but then where were the previous cases of cholera to which he could have been exposed? As far as is known his case was absolutely the first in the neighbourhood, or was second only to a case in Southampton, two miles from where he lived.

One or two other points remained to be investigated.

Seamen and others employed in the Peninsular and Oriental Company steamers, which run to the Mediterranean ports, where cholera was then prevailing, live when on shore in Southampton, and in all the villages about. Six live at Weston Common, but not close to the Hills.

On inquiry, however, it was found that some of the men were at sea at the time of the outbreak, some of the others were at home, having lately returned. It could not be made out that any had been ill. Two of the men belonged to the "Syria;" one to the "Ceylon;" one to the "Mongolia;" one to the "Ellora;" and one to the "Delta."

To this point reference will be made presently. None of the Hills had been in the houses of these men.

About 20 yards from the Hills is a small public house. It was thought possible that this house might have been frequented by some of the sailors in the Peninsular and Oriental Steam Company's service, who, though not suffering from cholera, possibly might have had cholérine, as the slight cases of cholera have been termed, and thus have infected the privy of the inn. But it was denied that any such sailors had been in the house for two months, and it was also certain that none of the Hills, who were all teetotallers, had ever entered the public house. No person in the public house itself was ill.

All inquiries then failed to trace back the origin of the first case, and it can only be said, that considering the boy's occupation, it is impossible to prove that he had not been exposed to some source of infection.

Two other cases of cholera occurred on Weston Common subsequently to the three cases of the Hills.

*Case 4.*—Arthur Veale, æt. 60. (Account given by his wife.) This man lived next door to the Hills (in whose house he had been twice) in a small, miserable, overcrowded cottage. He was always a sickly man, and looked as if failing before his time; he had been rather intemperate, and subject to bowel complaint. He had a great dread of cholera, and repeatedly said he should be the next victim. On October 2d, at night, he had one or two motions, and on the evening of the 3d was much purged, motions described as like "soap suds." At 11 a.m. he had cramps, and soon after got cold; the eyes became sunken, and with very dark areolæ; the hands and feet were dark and shrivelled; he became deaf. He died at 10 p.m. October 3d.

*Case 5.*—Sarah Lock, æt. 40. She lived at some distance from the Hills, at least 200 yards, and used different drinking water; she had

been both in their house and in Veale's while he was ill and after he was dead; she helped to place him in the coffin, and while doing so she complained of a very disagreeable effluvium, and felt that she was affected by it. She was taken ill at 3 p.m. October 6th with violent vomiting and purging, followed soon by cramps. When I saw her at 4 p.m. there had been no purging since 12 or 1 o'clock, the vomiting still continued, and there were cramps in the thighs and legs; the skin of the face was cool and dusky; the hands and feet were warm; the tongue was cool and moist; there was intense thirst; the voice was whispering, and the respirations were very hurried. The pulse was so quick and weak it could not be counted. She eventually recovered.

As to the origin in these two cases, if cholera is always derived from a previous case, Veale might evidently have taken it from his neighbour, in whose house he had been, and whose ashpit, on which the evacuations were thrown, was close to his garden. So also Mrs. Lock had been exposed to the influences of the disease, in both houses, Hill's and Veale's.

So that if the first case could have been traced, there would have been a considerable presumption that all the others were derived from it.

#### *Causes of the Cessation of the Disease at Weston Common.*

These five cases were all that occurred in this locality.

Nothing whatever was done to arrest the disease, and there were numbers of persons in the adjoining houses, who must have been susceptible, yet it did not spread. After it had stopped, disinfectants (especially McDougall's powder) were distributed, but this was some days after the last case.

The causes of the cessation lay therefore in no preventive action. There was also no change whatever in the weather or in any meteorological element. Temperature, barometric pressure, ozone, humidity, want of rain, remained constant. The houses are well separated, and have good external ventilation; there is none of the crowding which there is in towns; the water was pure, and the greater part of the discharges (the Hill's) were all thrown on an ashpit chiefly composed of cinders, and the effluvia from which ashpit, would not be likely to be inhaled by any one, except the family of Veale next door.

If, as now usually believed, cholera is mainly propagated by the discharges, the conditions were on the whole decidedly unfavourable for the spread of the disease in this way. The soil, it is true, is light and porous, but there is a good slope, and there are no houses lower down; so that if the stools sank into the ground they would not only soon penetrate, but would gravitate away from all the houses. A state of things of this kind would hardly come under Pettenkoffer's description of a soil adapted for the spread of choleraic disease. I believe, therefore, that the disease died in default of the necessary conditions of spread.

The cessation of the disease is an argument that the disease did not spontaneously originate there, but was brought into the locality from some undiscovered cause outside by Henry Hill.

#### *Sholing Common.*

At some little distance from Weston Common is a large common with scattered cottages. In one of these a case occurred in the person of a woman named Sarah Rapley, which is considered by Dr. Orsborn to have been a mild but decided case of cholera. She appears to have rallied very rapidly from the collapse, and to have recovered without consecutive fever. The origin of the disease could not be traced; she was a stranger, and had not been near Weston Common. There is sufficient doubt about the case to warrant us in putting it on one side.

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## § II.

II.—*Bitterne*.

Although some cases of cholera had occurred at Southampton before any were seen at Bitterne, it will be convenient to take the outbreak at Bitterne next.

Bitterne\* is a village about two miles from Southampton and 1,364 yards from the nearest point of the River Itchen, which runs between it and Southampton. It is on high ground, from 163 to 178 feet above sea level, and there is a rapid fall from it to the river.

The soil is sandy and gravelly, with clay at a depth of from 10 to 40 feet. The houses are for the most part scattered, and are provided with gardens, in which, and often in close proximity, are cesspools and wells.

At the north end of this village, and at the point farthest removed from Weston Common from which the village church is distant 1738 yards, and is separated by another village and by a wide expanse of open common, four cases of cholera occurred.

In the centre of the village another isolated case occurred, and perhaps at another part another, making in all six in Bitterne.

All these cases, as well as those at Weston, were attended by Dr. Orsborn of Bitterne, from whose memoranda as well as from my own notes of the cases the account below is made. There is some doubt which was the first case.

*Case 1.*—Henry Standley, æt. 55 or 60.

This man was a labourer, employed on the grounds of a gentleman at Bitterne.

History given by his neighbour and brother, and in part by himself.

Had relaxed bowels for several days, certainly on Sunday the 24th September and following days. On Wednesday the 27th September at 5 or 6 p.m. was taken violently ill with vomiting and purging while in the privy; he could hardly get back into the house. At 9 p.m. had violent cramps. All Wednesday night great vomiting, purging, and cramps; he was very cold, eyes sunken. On Thursday 28th, cramps less, but still felt very cold, hands "blue and shrunken," eyes sunk, looked blue all over, great thirst. No urine from Wednesday till Thursday morning, when the nurse thinks he passed a little; none after this. Seen by me at 9 p.m. Thursday 28th September; torpid, cold, pulse 104—very thready, eyes sunken, voice very weak, skin felt cold, no cramps, motions still pass in bed, great noise in ears; respiration 32.

Seen on Friday morning. Lies torpid, noise in ears, eyes sunken, pulse very thready but perceptible, complains of great pain over bladder, has passed no urine; shrinks when pressure is made above pubis; has passed a good deal of blood per anum. Temperature of inside of mouth 86°; temperature of axilla 96°.

Friday evening, September 29th, 9 p.m. Pulse can still be felt, but he is very torpid; has passed no urine. Died at 11 p.m. Friday.

This man had been living on very poor diet for some time; his wife had died three weeks previously, after an illness of some duration, which threw him into debt. Since then, almost all his money (12s. a week) had gone in paying off his debts and in feeding his two children. He had himself, I was assured, lived solely on a little bread and an apple daily.

For two days in the week before his attack he was engaged in clearing out a pond, and stood constantly in the water.

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\* In 1849, when cholera prevailed severely in the neighbouring village of Itchen, Bitterne entirely escaped.



*Case 2.*—James Standley, æt. 15. (Son of Case 1.) History from himself.

Had had looseness of the bowels for many days, certainly since Tuesday week (17th September). On Wednesday night (27th September) felt very sick, vomited, and purged all night. On Thursday morning had cramps, was cold to the feel all day, eyes a little sunken, voice not affected, cramps, vomiting, and purging all day.

Seen Friday, 29th, at 11 a.m. Skin of hands a little shrivelled, cool, vomits occasionally, purging at times, slight cramps, pulse small, 98, eyes slightly sunken, thirst. Friday, 9 p.m. Has slept a good deal, pulse good; temperature 100°. Sunday, October 1. Pulse good, skin warm, still some vomiting and purging, but no cramps. Recovered.

It seems quite clear that this boy had diarrhoea for many days before his father was ill in any way, the symptoms of cholera either showed themselves at the same time as those of his father, or were only two or three hours later. I believe this boy's case was really the first.

*Case 3.*—Emma Vare, æt. 28. Lives a long way from the Standleys, towards the south end of the village. No communication of any kind with the Standleys.

At 9 p.m. on the 29th September I went with Dr. Orsborn to see the above woman. State at this time: Pulseless, cold, eyes deeply sunken, hands shrivelled, skin quite unelastic everywhere; respiration 40, costal, shallow; heart's sounds on stethoscopic examination very feeble, voice a whisper; intense thirst. No motions at present or vomiting, cramps occasionally, but slight. Temperature of inside of cheek 87°; temperature of axilla 96°.

Says she passed urine in the middle of the day, but this is not certain, as she was passing very watery stools at that time, and she may have made a mistake; none since.

Seen first by Dr. Laing at half-past 4; was then collapsed as at 9 p.m.

History.—During the last fortnight a good deal of diarrhoea, but this was better, and on Monday and Tuesday it is believed she was pretty well; she did some washing. On Wednesday (27th) she went to Weston, she felt poorly before she went; on returning home felt sick, had purging and vomiting all night and all Thursday (28th), and all last night. No cramps, it is believed, till this (Friday) morning. She was collapsed when first seen. Died at 12 p.m. September 29th.

*Case 4.*—Harriet King, æt. 48.

This woman lives about 100 yards from the house of Standley (Case 1. at Bitterne). She was constantly in Standley's house, nursing him and doing all she could. I saw her on Friday morning (Sept. 29th), she was then quite well. Sometime on Friday she had diarrhoea and pain in the stomach; this continued on Saturday. At 8 p.m. on Saturday (Sept. 30th) she became much worse, she vomited all night and was much purged; motions green and very loose; vomited matter also green. At 12 p.m. had cramps. At 11 a.m., Sunday, almost pulseless; eyes sunken; hands cold; rather shrivelled; voice almost lost, whispering and cracked; sickness and cramps every now and then; is becoming very torpid; intense thirst. At 6 p.m., pulse just perceptible, like a thread; voice whispering; purging almost stopped; rather less shrivelled; hands and feet cool; lips and breath cold. Oct. 3d, has been gradually rallying; at 12 noon, Oct. 3d, passed a little urine, the first since Sept. 30th. A low febrile condition continued for some days. Recovered.

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*Case 5.*—Vashti Butt, æt. 22.

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Lives about 40 yards from the Standleys, with whom she has had no sort of communication ; lives next door to a Mrs. Burgess, who has helped to nurse the Standleys, but the two cottages are separated by a garden and are 15 yards apart. Mrs. Burgess took towels and (I believe) sheets to the Standleys when they had used all theirs, and brought many of them back saturated with the cholera evacuations ; she put them in cold water, and then hung them up in her garden to dry, between her house and Mrs. Butt's. Whether this had anything to do with Mrs. Butt's illness is doubtful, but it seems proper to record it, particularly as Dr. Acland in his able history of the cholera at Oxford, has recorded a remarkable instance of cholera apparently originating from a similar cause. (Case of New Hincksey. On the cholera at Oxford, p. 45.) Perfectly well yesterday (Saturday Sept. 30th). Had two motions yesterday, not loose ; her ordinary habit is to have only one. Slept well. At 6 this morning woke up, and was suddenly sick and greatly purged. Has been sick and purged ever since. When seen by Dr. Orsborn she was shrunken, bluish, cold, and presented all the appearance of a case of cholera. I saw her at 11.30 a.m., she was then commencing to get warm, and felt much better than an hour before ; she was still sick, and purged ; no cramps, no noise in ears ; felt giddy. Pulse 116, very small. Temperature of mouth 96° ; temperature of axilla 98°. Tongue pale, moist, cool ; eyes a little sunken. In four or five hours commenced to rally, and recovered without consecutive fever.

*Case 6.*—George Lake, æt. 19, was attacked on the 5th October with slight, but as Dr. Orsborn considers, unequivocal symptoms of cholera. He speedily recovered. No connection could be traced between his case and the others.

There were therefore six cases at Bitterne ; or omitting this George Lake's case, five decided cases, of which two were fatal.

Four of these five cases occurred in one locality ; the fifth at a distance ; no sort of communication could be traced between any of those and the cases at Westen Common ; Mrs. Vare had indeed been to the village of Weston on the day of her attack, but this is a long way from Westen Common.

The house of the Standleys is one of the oldest and worst cottages in Bitterne ; almost a hovel ; a small garden surrounds it ; there is an offensive privy close to the house, and a shallow well, badly coped, very near both house and privy. It would certainly be selected as the most likely house in Bitterne in which cholera would appear, and when to this is added the ill-fed and feeble condition of Standley and his boy, we certainly seem to have all the usually assigned predisposing causes of cholera present in a marked degree.

The water also was highly impure. Some water was procured on the 29th September, and on analysis gave:—

			Water from Standley's well.
			Grains per gallon.
Mineral solids	-	-	- 31·07
Volatile solids	-	-	- 11·98
Total solids			- 43·05
Chloride of sodium	-	-	- 11·867
Hardness (Clark's scale)	-	-	- 10·15
Oxygen in grains required to oxidize			
matter, per gallon, at 140° Fah.	-		0·236

There was a large quantity of nitrates, some nitrites, some ammonia, and a good deal of phosphate in the water. When the well was subsequently cleaned out, there was found to be at least two feet depth of mud and decomposing filth at the bottom, and the bodies of two cats had been previously fished out.

With regard to food, Standley stated that on the Sunday preceding the attack (which occurred on Wednesday) he had eaten some cabbage which had disagreed with him and "given him the wind."

Apart from the conditions of house, water, and food, no cause could be traced for the disease either of father or the son.

The father had not been at work, except near to his own house, had not been at Southampton, Weston Common, or elsewhere.

The son had been at work on the railway, but nothing could be made out to show whether or not he had been exposed to any source of infection.

It will, however, be noticed that both father and son had had diarrhœa for many days before their attacks, and that in each case sudden aggravation of symptoms occurred nearly at the same time, viz., on the 27th September; all the diarrhœa stools, as well as the choleraic stools subsequently, were thrown on the ground in close proximity to the well, and I satisfied myself that they would easily find their way into the well.

Is it not possible then, that the almost simultaneous severe choleraic attack in father and son arose from their drinking their own diarrhœal evacuations.

The case may be put thus:—Either the father and son were suffering from the early stage of cholera (*i.e.* the so-called premonitory diarrhœa which is really cholera), and the specific discharges passed into the well, and being then swallowed, produced the more violent attack which affected each person nearly at the same time; or they were suffering merely from ordinary diarrhœa, and their non-specific discharges passing into the drinking water, and being swallowed produced the choleraic symptoms which came on on Wednesday the 27th.

On the first supposition, we should still have to account for the attacks of premonitory diarrhœa or rather cholera; in the last, we should have the anomaly of common diarrhœal discharges, producing a specific disease.

That diarrhœal discharges, and, less markedly, healthy sewage, passing into drinking water and being swallowed, will cause extremely severe diarrhœa, which is accompanied sometimes by algid choleraic symptoms (fall in bodily temperature, lowering of force of the circulation) is well known. Were the two cases of the Standleys of this sort, and should we draw a line between them and true cholera? If so, we cannot draw this line by the aid of symptoms, for there was no difference between these cases and those at Weston Common and Southampton.

Besides, if these two cases are to be looked upon as instances of non-specific cholera, and caused merely by impure water, some other difficulties arise.

This disease appeared to be communicated to Mrs. King who was so much in the house, but who did not drink the water.

At least, it is very curious that none of the neighbours were attacked but this woman, who had been constantly in the house, and Mrs. Butt. Now a communication of common autumnal cholera has never been suspected. Then there was another case at the same time in the village in a woman, who had no communication with the Standleys, and there were other cases at Weston Common and at Southampton, which were

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decidedly not owing to impure water. If we ascribe the Standleys' disease to impure water and the others to some other cause, are we not assigning a diversity of causes for the same effect?

The causes of the illness of Mrs. Vare, the 4th case of Bitterne, are quite obscure. She was the wife of a labourer, was badly fed, and lived in a very small room. She appeared to have every symptom of a very severe case of Asiatic cholera when I saw her, and yet the case was quite isolated, there was no person previously ill in the house, and none afterwards. No communication could be traced between her and any former case; unfortunately, the drinking water was not examined, but as many persons were using it, and no one else was affected, it can hardly be supposed to have been impure.

It is desirable, however, to defer the consideration of this question of origin until the other outbreaks have been considered.

*Causes of the Cessation of the Disease at Bitterne.*

Immediately these cases were known to have occurred very active steps were taken by the inhabitants of Bitterne. The well at Standley's house was closed, and water from a distant source was supplied daily to all the neighbouring cottages. Disinfectants (chloride of lime and McDougall's powder) were issued gratuitously and were used largely throughout the village; many nuisances were removed; privies were emptied, ashpits cleared away; house to house visitation was instituted; and, in fact, all the usual measures for cleaning and for arrest of premonitory diarrhoea were put into force.

In the cottages of the affected persons chloride of lime was put in the vessels receiving the discharges, and strict orders were given by Dr. Orsborn that the discharges should be deeply buried and not thrown down the privy or on the ground. A house to house visitation was at once commenced and medicine supplied for all cases of diarrhoea.

The disease did not spread, but whether owing to these measures is not quite certain, as it seemed to be lessening before they were brought fully into action. Still it is probable they had an effect. It must be said also that the separation of the houses in Bitterne and good external ventilation are, as in the case of Weston Common, not favourable to the spread of cholera.

As far as the soil is concerned it is perhaps too dry to be favourable to the spread of cholera, and there is a good fall for water from three sides of the village.

There was more evidence of some general unhealthy condition at Bitterne than at Weston Common, as there was certainly a very unusual number of cases of diarrhoea during the prevalence of cholera.

## § III.

III. *Southampton.* District under the Local Board of Health.

In this portion of Southampton and almost entirely in the lowest, dampest, and most crowded portions 31 cases occurred and 15 died or 48·39 per cent.

*Case 1.*—The earliest case was possibly one recorded by Dr. Langstaffe in August 1865, and the record of which will be found further on; but the case which first attracted general attention was that of a man named James Rose who died on the 24th September. The case gave rise to great discussion, and doubts were expressed as to its being really one of cholera. It was seen by two medical men, Dr. Cheesman and Mr. Cooper (Officer of Health), who were both quite certain of the diagnosis.

Dr. Cheesman was kind enough to give me the following account :

The patient was a labourer on board the mud engine employed off the town quay, and lived in a small crowded house with no back outlet, and occupied by three sets of lodgers. He had diarrhoea for five days (commencing on the 17th September, which ought to be considered the date of the commencement of the disease), and when seen by Dr. Cheesman, on the 22nd September, at 11 a.m., he had "all the symptoms of cholera in the advanced stage," viz., rice-water purging and vomiting, cramps in the upper and lower extremities, peculiar voice, cold tongue, general clamminess of the whole body, sunken and contracted countenance, with complete suppression of urine, and scarcely any pulse. In the evening he became warmer, purging and vomiting abated, but the kidneys did not act; after this he gradually became unconscious, and on the following evening was in a complete state of coma, and died on the evening of the 24th September 1865.

With regard to exposure to previous cases of cholera, none are known to have occurred in Southampton, unless Dr. Langstaffe's was one, and that was a month previously. But in a case of this kind, a labourer living in a crowded house, and in a crowded part of the town, and employed on the river, it is impossible to say to what he may have been exposed. No other persons in the house had any subsequent attack. None of the sailors of the Peninsular and Oriental boats lodged in the house. There is no closet attached to the house, and Rose made use of a closet common to all the adjacent houses. To this point I shall return.

*Case 2.*—Four days later, on the 28th September, Henry Westcott, at 62, was attacked. He was a man in easy circumstances, of no occupation,—well fed and cared for. He could not have been near Rose. His house was not healthy, and in adjoining houses there were cases of typhoid fever and scarlet fever. He was not known to have been in the docks, and his widow stated to Dr. Bencraft that she did not think he was there for three weeks before his death.

He was a patient of Dr. Bencraft, and was seen by that gentleman, Dr. Wiblin, Mr. Cooper, and myself. On the 28th September he was seized with vomiting and purging about noon, and continued ill all day. At 12 noon, 29th September, when I saw him, he was collapsed; his hands were shrivelled and cold. The tongue was cool and pale, moist at edges, a little dry in centre. The eyes were sunken with dark areolæ; the voice, a whisper; the pulse very thready; the mind clear. The motions, which had been watery, were shreddy and bloody; there were still cramps and occasional vomiting. He was not quite certain about his urine, but thought he had passed it. He died at 4.50 p.m. on the same day.

*Case 3.*—Emma Fulton, æt. 54.

Residence, 16, Compton Walk; a patient of Dr. Griffin. She had diarrhoea for two or three days, and was then attacked with cholera on the 30th September. Dr. Griffin had no doubt whatever of the nature of the case. She recovered.

*Case 4.*—On the same day as the last case, or possibly a day sooner, Priscilla Hembury, æt. 49, residing at 79, Willbank Street, was attacked. She was a patient of Dr. Griffin, with whom I saw the case. The patient had diarrhoea on September 29th, which was neglected. Late on the 30th vomiting came on, and on the following day when first seen by Dr. Griffin, she was almost constantly purged and vomited; the motions being light-coloured and rice-water in appearance. There were cramps, coldness and clamminess of the skin; the voice was

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hoarse, and whispering; pulse very feeble. No urine for 36 or 48 hours. On the following day, when I saw her, she was beginning to rally; the tongue was warm; the hands cold and still a little shrivelled; the eyes were sunken, but less so; the voice was still cracked, but was also improving. I saw one stool passed on the 1st October, it was a true rice-water stool, and was taken for analysis. Another, passed on the 2nd October, was brownish with a peculiar albuminous smell.

She died eventually of exhaustion. It seemed very difficult to account for this case; she had never been out of the house except to see her mother, who lived in an airy open part of Southampton, and it was while going there she was first attacked with purging. Millbank Street is very low and damp, not far from the mud-banks of the Itchen, but the house itself was clean; there is a watercloset with abundant water. When I saw it it was quite clean and without odour.

She drank nothing but the reservoir water, which is quite pure. She told me she was not subject to diarrhoea, nor could she recollect to have taken any thing which had disagreed with her. There had been no other sick person in the house, no one had been in the house, and no one in the house washed any clothes, and neither she nor her husband could at all account for the attack, and Dr. Griffin, who looked very carefully into the matter, could not trace the cause. The husband worked in the Northam shipbuilding yard, and to this point I shall refer immediately.

*Case 5.*—In another part of the town in Simnel Street, in the dirtiest common lodging-house in Southampton, a labourer in the docks, John Reynolds, æt. 33, was attacked on the 30th September. He had lived badly and been rather intemperate. He had not been on board any ship, or near any sick person to his knowledge. On the 28th September his bowels were relieved once; on the 29th, not at all; on the 30th at 3 p.m. he had a loose motion; at night was purged two or three times. On Sunday, October 1st, and Sunday night he vomited, and was purged at least 20 times, and had cramps; he took no medicine. On the morning of October 2nd, when he was seen by Dr. Griffin, he was collapsed. I saw him with Dr. Griffin at 11 a.m. the same day. His pulse was 104—thready; respiration a little hurried; tightness across front of chest; eyes sunken; hands and feet cold; somewhat shrivelled, surface cold; voice hoarse and low, not whispering; no urine; great noise in ears, “like a drum;” profuse rice-water vomiting and purging. Stool taken for analysis, and found to have the usual characters of cholera stools. He rallied in part from this attack, but died after consecutive fever from exhaustion.

*Case 6.*—On the 2d October, Sarah French was seen by Dr. Cheesman, who has no doubt the case was one of unequivocal cholera.

*Case 7.*—Elizabeth Moody. This case was certified as English cholera. She died in 36 hours; and I have thought it right to include it in the list of cases of Asiatic cholera.

*Case 8.*—Jane Osnam, æt. 20, residing in Waterloo Bridge Road, a patient of Dr. Griffin. She had diarrhoea for about a week before her attack, which commenced on the 3rd October. She had all the symptoms of a mild case. She recovered.

*Case 9.*—Ellen Alice Mare, æt. 34, residing at 74, Millbank Street (five doors from Case 4), was attacked on October 4th, and was attended by Dr. Scott. She had diarrhoea for five days (commencing on the 30th September). The symptoms of cholera were well marked; she died in collapse in 32 hours. Her husband was a workman in the Northam yard. A lodger in the house was at work on a steamer from London in the Southampton docks, but that man was perfectly well, and remains so.



It seems unnecessary to narrate all the cases in detail. I have given the above partly to prove the diagnosis, partly to show that they were under the care of various practitioners who (with the one exception of Elizabeth Moody's case) agreed in diagnosing Asiatic cholera. The remaining cases have already been enumerated in the table, but it will be desirable here to give another table, distributing the cases according to locality, and stating the name of the medical attendant.

CASES in the District of SOUTHAMPTON, showing the Names and Residences and Medical Attendants (for Dates of Attack, Ages, Result and Duration, see the large Table in the beginning of the Report).

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No. of Case.	Names.	Residences.	Medical Attendant.
1	Rose, James -	4, Brewhouse Court -	Dr. Cheesman.
2	Westcott, Henry -	Anglesea Terrace -	Dr. Bencraft.
3	Hembury, Priscilla -	79, Millbank Street* -	Dr. Griffin.
4	Fulton, Emma -	16, Compton Walk -	Dr. Griffin.
5	Reynolds, John II. -	Silk Shop Yard -	Dr. Griffin.
6	French, Sarah -	41, King's Street -	Dr. Cheesman.
7	Moodie, Elizabeth -	54, James Street -	Dr. Lawrence.
8	Osnam, Jane -	Waterloo Bridge -	Dr. Griffin.
9	Mare, Ellen Alice -	74, Millbank Street -	Dr. Scott.
10	Cleverly, George -	Wright's Buildings -	Dr. Cheesman.
11	Burton, Julia -	Rookery -	Dr. Cheesman.
12	Dawes, Mary -	Russell Street -	Dr. Cheesman.
13	Richards, Eliza -	5, West Street -	Dr. Cheesman.
14	Simms, Ellen -	Houndwell -	Dr. Cheesman.
15	Lee, Elizabeth -	Millbank Street -	Dr. Bencraft.
16	Thomas, Eliza -	King Street -	Dr. Cheesman.
17	Verdy, William -	Grove Street -	Dr. Bencraft.
18	Smith, John -	—	Dr. Lawrence.
19	Parry, Jane -	Rose Court, Queen St. -	Dr. Cheesman.
20	Moore, Charlotte -	43, King's Street -	Dr. Bencraft.
21	Jeffries, Alfred -	Grove Street -	Dr. Bencraft.
22	Poulton, Walter -	Old Northam -	Dr. Appleton.
23	Scannell, James -	Rookery -	Dr. Cheesman.
24	Jones, Jane -	6, Cross Street, Rookery -	Dr. Cheesman.
25	Sherlock, Jessie -	Cross Street, Rookery -	Dr. Cheesman.
26	Burger, Sarah -	43, King's Street -	Dr. Cheesman.
27	Hopper, John W. -	Ship at Chapel -	Dr. Bencraft.
28	Englefield, Mary -	75, Millbank Street -	Dr. Griffin.
29	Allen, James -	Prince's Street, Northam -	Dr. Appleton.
30	Cooper, Francis†	Gloster Square -	Dr. Sampson.
31	Pounds, Thomas -	6, Portland Terrace -	Dr. Trend.

#### *What were the Causes of these Attacks?*

*Locality.*—All the attacks occurred in the low part of the town ; they were chiefly scattered, and showed no tendency to aggregation, except in two localities, in and about the Rookery, and in Millbank Street, Northam, about half a mile away. The other cases were not near each other or these.

At Cross Street and King Street, or close to the Rookery, the height above mean sea level is 15 feet ; at Millbank Street it is 10 feet. In

\* Millbank Street is about a half to three quarters of a mile from the Rookery, and from the Rookery to Brewhouse Court and Simnel Street is about a quarter to half a mile. King Street and Russell Street are close to the Rookery.

† Mr. Cooper was the Officer of Health for Southampton ; he was indefatigable in his exertions, and was overworked both in body and mind. It is believed that he fell a victim to his zeal and to the anxieties of his position.

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both places the soil is alluvial sand and gravel and is moist ; water is found a short distance from the surface. Each site is not very distant from the Itchen River, a tidal stream with extensive mud banks, covered however four times daily with the tide. Such a locality is the typical place where cholera would be supposed to occur. But before ascribing too much influence to it, we must remember that cholera at the same time occurred at Bitterne, 170 feet above the sea, and at Weston Common which is also well elevated.

*Drainage.*—Most of the houses in Southampton have sewers, and there is an abundant water supply (26 gallons per head in winter, and 35 in summer). The sewerage and water supply were carried out after the cholera of 1849, and although very great difficulties have arisen in some parts of the town in consequence of the faulty construction of the sewers, and defective outfall, it so happens that the sewers act better in that part of the town where cholera prevailed than in some wealthier parts. In most of the old small houses the old privies outside the houses have been converted into waterclosets which are well trapped. There is, therefore, no escape of sewer gas into the houses, or if any effluvia escape they must at once pass into the surrounding air.

The effect of such an arrangement in counteracting the influence which the loose moist soil would otherwise have exerted is obvious. Had this part of Southampton been supplied with cesspools, all the cholera evacuations would have passed into the ground, and there have spread for great distances, and gradually decomposed ; then would have followed a tremendous outbreak of cholera. As it was, every evacuation was thrown into the outside closet, and at once washed away and carried into the sea. I have no doubt that the sanitary measures brought about by the calamity of 1849 have been in part the means of saving Southampton from an equal fate in 1865. One house in which cholera occurred, Julia Burton's, is not sewered, and here all the discharges were thrown out into a small back yard. The sewers all end at one point (Belvidere sewer), with a discharge into the Itchen River, near its junction with the Southampton Water.

*Ventilation.*—The Rookery is a collection of small miserable houses, with narrow streets and courts. There is much obstruction to a free movement of air in and about it, and openings are urgently required. In Millbank Street the movement of air is less impeded. Inside the houses the ventilation is, as common in England, as bad as it can be.

*Water Supply.*—All the persons attacked drank the town water, which was consumed also by the other 53,000 persons in Southampton. The water is from the chalk, and is quite free from deleterious matter. As the service is continuous there is no local contamination from cisterns. At my request the mayor Mr. Bowman ordered an analysis to be made, and it was accordingly done by Dr. de Chaumont of the Army Medical School.

## ANALYSIS of WATER supplied to the Town of SOUTHAMPTON.

Copy of Letter and two Analyses of Water supplied to the Town of Southampton, by  
 F. de Chaumont, Esq., M.D., &c., &c.

SIR,

Royal Victoria Hospital, 9th November 1865.

I HAVE the honour to forward the analyses of the (1) Southampton Reservoir Water, and (2) the water from the drinking fountain in East Street.

I have the honour to be, sir,

Your most obedient servant,

(Signed) F. DE CHAUMONT,  
 M.D., Staff Surgeon.

G. Manwaring, Esq., Engineer,  
 Town Clerk's Office, Southampton.

*Analysis of Water from the Southampton Reservoir.*

*Physical characters.*—Clear; taste pleasant, but a little earthy; no sediment; faint greenish colour through a depth of  $1\frac{1}{2}$  feet.

*Qualitative Analysis.*

Lime—pretty copious reaction.  
 Magnesia—moderate.  
 Sulphuric acid—slight trace.  
 Phosphoric acid—trace.  
 Chlorine—in small quantity.  
 Nitrous acid }  
 Nitric acid } None.  
 Ammonia. }  
 Iron—slight trace.  
 Organic matter—moderate re-action.  
 (By chloride of gold.)

*Hardness.*

Total hardness (before boiling) =  $14^{\circ}$  (Clarke's)  
 Fixed hardness (after boiling) =  $2^{\circ}8$ .  
 Removable hardness - - - =  $11^{\circ}2$ .

*Quantitative Analysis.*

Fixed solids :—	Grammes in a litre.	Grains in a gallon.
Carbonate of lime - - -	0·1650	11·550
Sulphate of lime - - -	-	Traces.
Carbonate of magnesia - -	0·0084	0·588
Carbonate of soda - - -	-	Traces.
Chloride of sodium - - -	0·0221	1·554
Total fixed solids - - -	0·1956	13·692

Volatile solids :—	Grammes in a litre.	Grains in a gallon.
Organic matter by permanganate of potash - - -	0·0188	1·316
Other volatile matter - - -	0·0352	2·464
Total volatile matter - -	0·0540	3·780
Total fixed solids - - -	0·1956	13·692
Total solids - - -	0·2496	17·472
Total solids by evaporation -	0·2440	17·080
Difference (loss on evaporation) -	0·0056	0·392

Iron }  
 Silica } Traces.

Carbonic acid free = 3·25 cubic inches per gallon.

*Remarks.*—This water presents the usual characteristics of a water from a chalk district. There is a large quantity of carbonate of lime, and consequently a large removable hardness. The fixed hardness is small and due to a small quantity of magnesian salts. The organic matter is in small quantity, and as it is charred a good deal on incineration, is probably almost entirely vegetable in its origin. No acrid fumes were given off on incineration, and the other volatile matters were in all probability some of the combined carbonic acid driven off on incineration, and which the ordinary process had failed to restore. A very slight difference is observable between the results now submitted and those obtained in the former analysis made by me some months ago. It is, however, so slight as to be more than accounted for by the unusually large rainfall which has occurred during the interval. The chief points of difference are :—1, A slight increase in total solids. 2, A slight increase in volatile matters. 3, A slight decrease in magnesian salts. 4, The presence of traces of sulphuric and phosphoric acids, 5, A decrease in the free carbonic acid. On the whole it must be considered as an excellent and wholesome water.

(Signed) F. DE CHAUMONT, M.D., F.R.C.S.E.,

Staff Surgeon, Assistant Professor of Hygiene.

Laboratory, Royal Victoria Hospital,  
 9th November 1865.

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## APPENDIX.

*Analysis of Water from the Drinking Fountain in East Street, Southampton.*

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*Physical characters.*—Clear; no sediment; yellowish-green tinge through a depth of  $1\frac{1}{2}$  feet; taste pleasant.

*Qualitative Analysis.*

Lime—Pretty copious re-action.  
Magnesia—moderate.  
Sulphuric acid—slight.  
Phosphoric acid—trace.  
Chlorine—in small quantity.  
Nitrous acid }  
Nitric acid } None.  
Ammonia }  
Iron—slight trace.  
Soda—in small quantity.  
Organic matter—moderate re-action.  
(By chloride of gold.)

*Hardness.*

Total hardness (before boiling) =  $13^{\circ}\cdot65$  (Clarke's)  
Fixed hardness (after boiling) =  $3^{\circ}\cdot15$   
Removable hardness - - =  $10^{\circ}\cdot50$

*Quantitative Analysis.*

	Grammes in a litre.	Grains in a gallon.
Fixed solids :—		
Carbonate of lime - - -	0·1350	= 11·550
Sulphate of lime - - -	0·0036	= 0·252
Carbonate of magnesia - -	0·0105	= 0·735
Chloride of sodium - - -	0·0234	= 1·683
[a] Carbonate of soda, iron, silica, and loss - - -	0·0375	= 2·625
Phosphoric acid - - -		Traces.
Total fixed solids - - -	0·2400	= 16·800
Volatile solids :—		
Organic matter (by permanganate of potash) - - -	0·0163	= 1·141
Other volatile matters - - -	0·0137	= ·959
Total volatile solids - - -	0·0300	= 2·100
Total fixed solids - - -	0·2400	= 16·800
Total solids - - -	0·2700	= 18·900

Free carbonic acid = 1·95 cubic inches in a gallon.

*Remarks.*—The process by direct evaporation gave in this case a slight excess over the sum of the individual determinations, and this difference is included in the quantity [a] along with the carbonate of soda, &c. This water, it may be observed, has altered very little in its transmission from the reservoir to the point of delivery. The changes are as follow :—1, A fractional increase in total solids. 2, A diminution in organic and volatile matters. 3, A slight increase in fixed hardness, with a slight decrease of total hardness. 4, A fractional increase in the chlorides. 5, The presence of a minute but appreciable quantity of sulphate of lime. 6, A diminution in the free carbonic acid.

All these changes, however, are so slight, that they may be practically disregarded, so that the remarks which apply to the reservoir water are equally applicable to this.

(Signed) F. DE CHAUMONT, M.D., F.R.C.S.E.,  
Staff Surgeon, Assistant Professor of Hygiene.

Laboratory, Royal Victoria Hospital,  
9th November 1865.

*Food.*—The cases were so numerous, so distributed, and belonging to such different classes that there could be no chance of the disease being caused by any article of food used by all.

*Proximity to previous Cases or possible Introduction of the Disease.*

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As already stated, it cannot be shown that Rose, Westcott, or Hembury had been near any other patients. All inquiries have failed in tracing directly their sources of exposure. Could they have been exposed indirectly to any effluvia? During the last 10 or 15 years the opinion has been gaining ground (and in my opinion justly so) that cholera is mainly spread through the action of the discharges from the stomach and bowels. And it is now also well known that the evacuations in the so-called premonitory or choleraic diarrhœa, (which often stops before passing into the stage of collapse, but which in fact is cholera,) are equally capable of spreading the disease. Had, therefore, Rose, Westcott, or Hembury been in any possible way in a position to be affected by matters given off by choleraic discharges? I must here anticipate what will be more fully stated farther on, viz., that during July, August, and September there can be little doubt that the Peninsular and Oriental Company's steamers ran into Southampton after having had cases of cholera (on two occasions) and of diarrhœa (on two or three occasions) on board during the voyage from Alexandria homewards. The crews of those vessels would, as already said, disperse over Southampton and its neighbourhood.

First, as to Rose. Brewhouse Court, where he lived, is a close court in the lower part of the town near the theatre; it consists of nine or ten houses, each inhabited by two or more families. Two waterclosets situated in a small detached yard supply the whole of this large population, certainly more than 40 persons. At the back of these two closets are two others supplying the whole of the adjacent street (Brewhouse Lane). But, in addition, these four closets are really quite public; persons going to the theatre or frequenting the houses of prostitutes, of which there are several in the neighbourhood, constantly use them. If sailors, firemen, or passengers landed with cholera or choleraic diarrhœa from the steamers and frequented any of those houses their evacuations would probably pass into these closets. Here would be the place where cholera should break out, if it were not for one circumstance. The closets are filthily enough kept, but in themselves they are of good workmanship. They act well and there is a very large, indeed unlimited, supply of water. At this part of the town the sewers are in good order, and the cholera discharges would pass very rapidly into the sea. Hence, while the common use of these waterclosets would render them the receptacle of choleraic discharges, these discharges would not be retained, but would be at once washed far away. In fact, I believe, that it is to these two circumstances,—the good sewers of this part of Southampton and the abundant water supply that the cessation of cholera is in part due.

If Rose inhaled the choleraic poison in these closets, he was the only person, as no one else was affected in the house or court. But his wife and his neighbours mentioned a fact which possibly may explain his attack and their immunity. On the 17th September one of these closets got stopped up, and Rose attempted to clear it by pushing a stick past the trap. He was thus exposed for a longer time, and to a larger quantity of effluvia, than his neighbours. Either on that day or the next he commenced to have diarrhœa. Interpreting these facts, inconclusive in themselves, by the light of our present knowledge of cholera, it is impossible not to be struck with the possibility of the origin in this way.\* With regard to Westcott, I have been unable to find any evidence showing chances of exposure to such effluvia.

\* Although I attribute a very great preventive effect to the good condition of the sewers in the parts of Southampton where cholera prevailed, there are some qualifying

With respect to the case of Hembery and of the other cases in Millbank Street, there is one circumstance of interest. Gannaway, who died of cholera on October 5th, worked in the Northam iron shipbuilding yard, and Poulton, who recovered from it, worked in a wooden yard close to it. The husbands of Mare, Hembery, Lee, and Englefield, who all lived in Millbank Street, also worked in the iron yard, and in the houses of those women there were also lodgers who likewise worked there. Now, on the 16th or 17th September an outbreak of severe diarrhœa occurred among the workmen in the yard, which lasted till the middle of October. No such severe outbreak had ever been before known during the 17 years the yard has been open.

The Northam yard is situated on the Itchen River, about a mile from the docks, and it might at first sight appear very extraordinary that this yard should suffer so severely from diarrhœa, and that all the people who suffered from cholera in its vicinity should be directly or indirectly connected with the yard. Could it be possible to explain it in the following way? All the repairs on board the Peninsular and Oriental boats in the docks are done by men sent from the Northam yard. The following table gives the number, ships, and dates of employment :—

No. of men and boys employed from the Northam Yard in ships in the Docks.	Name of Ship.	Period of Employment.
26	-	" Ellora " - - July 11 to 21.
26	-	" Massillia " - - July 15 to 21.
8	-	" Syria " - - July 15 to 21.
25	-	" Nyanza " - - July 28 to Aug. 4.
35	-	" Delta " - - Aug. 5 to Aug. 18.
30	-	" Ceylon " - - Aug. 12 to 20.
21	-	" Poonah " - - Aug. 18 to 25.
15	-	" Tanjore " - - Aug. 21 to 31.
12	-	" Ripon " - - Aug. 26 to 31.
20	-	" Pera " - - Sept 9 to 21.
40	-	" Delta " - - Sept. 13 to Oct. 2.

circumstances which must be noted. Sewers may be a source of danger if they get blocked up; and at the time when cholera prevailed in Southampton the sewers of one part of the town were actually blocked up. Luckily these were in the higher and better part of the town, and no cholera patients happened to enter any of these houses, but had they done so and had their discharges passed into these obstructed sewers, the sewers would have been a source of danger, and not, as they actually were in the lower part of the town, of safety.

Sewers may also be a source of danger if the discharge of the sewage matter is not properly managed. At Southampton, the four tides every day lessen in some degree, without removing, the danger of the present imperfect outfall of the main sewer which is not carried down as it should be to below low-water mark.

Again, in the case of Brewhouse Court and other similar places in Southampton, the escape from cholera must be looked upon as in some measure a lucky accident. If the sewers from Brewhouse Court had become blocked up, and there is constant danger of this in these public and ill-managed closets, there might have been a severe outbreak of cholera; it is a matter of safety, no less than as a matter of decency and comfort, that such a state of things as obtains in Brewhouse Court should be remedied at once. There ought to be a sufficient number of closets; separation of the sexes, and privacy. The public ought not to be admitted to closets provided for private houses; for them there should be public closets, provided in places where they are most needed and with proper management and attendance. The town of Southampton has done a great deal in the way of purification; a very little more outlay would remove such outrages to decency and dangers to health as exist in Brewhouse Court.



Now if cholera had been brought by the Peninsular and Oriental boats, the persons who would be most likely to suffer, of all the people in Southampton, would be the men from the Northam yard, who are sent on board these vessels directly they enter the docks, and are engaged in the hold and other parts of the ships repairing them. Could the outbreak of diarrhoea in the yard be really one of cholera or slight cholera, and could the wives have suffered from the disease being conveyed to them by their husbands? Poulton, who was attacked with cholera, may possibly have taken the disease to his wife and children, as they all suffered from severe choleraic diarrhoea, but I cannot learn that the husbands of Hembery, Mare, Lee, or Englefield had diarrhoea, though I am not certain they had not.

But if the men at work in the docks got diarrhoea or cholera from a vessel, it must have been from the "Pera" or the "Delta," as those vessels only would correspond as to time. Now the "Delta" actually had cases of severe diarrhoea on board en route to Southampton, and up to the time of entering the docks; and the "Pera" also had many cases, both while lying in the harbour of Alexandria and on the voyage home.

In the yard there is a common privy, which is used not only by the men of the iron, but of the adjoining wooden yard, where Poulton worked.

Here again, as in the case of Rose, I cannot help believing, that it was in this way choleraic effluvia affected these persons, though I admit at once that there is ambiguity about the circumstances of the case; still the general features of the case point to this conclusion.

Of course, in tracing out intercourse in succeeding cases a large town offers great difficulties, particularly if the investigation is not commenced at very early period.

There was more intercourse and more evidence of communication afterwards. Rose and Westcott's cases were followed by no others in the houses. Hembery's case however was followed by Mare's, five doors off in the same street; the same woman (Englefield) nursed them both, and washed their clothes. Subsequently, seven days after the death of Hembery, nine days after the death of Mare, Englefield was attacked. Of course, as she was exposed to all the local influences, whatever they were, it is impossible to say whether she derived the disease from her patients or carried it from one patient to the other.

Another instance is stronger, Julia Burton died on the 8th October in the Rookery, and all the discharges were thrown into a back yard. Charlotte More attended her, was attacked with the disease, and went home to her own house in King Street, where she died on the 11th October.

In this house a child who lived with her, Sarah Burgess, was taken ill on the 12th, and died on the 14th. Her husband was also attacked with very suspicious symptoms, and though I have not included his case, there are some reasons for thinking it was really cholera. In this instance there were rather strong grounds for thinking the poison was carried.

A child Sherlock, who lived two doors from Julia Burton, and must have been exposed to the exhalations from her back yard, died on the 13th of undoubted cholera.

#### *Causes of the Cessation of the Disease in Southampton.*

As already said, in some part of the town at any rate the conditions are not favourable to the spread of cholera, if this depends on the discharges. The immediate and complete removal of the evacuations from the

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houses must have been one great cause of the cessation of the disease. But there were other causes.

A sanitary committee of the Town Council is always acting in Southampton.

Immediately on the appearance of the disease the committee, headed by its energetic chairman, Alderman Palk, set most vigorously to work, and in a few days there was not a court in the city which was not thoroughly cleaned and lime-washed. Lime was everywhere. Disinfectants, chloride of lime, and chloride of zinc, were issued gratuitously, and strict orders were given that they should be mixed with all cholera discharges, and should be applied to soiled linen.

The Mayor and Town Council instituted a thorough house to house visitation of the whole town for the purpose of discovering nuisances, distributing infectants, and of giving medicines to avert premonitory diarrhoea.

A house was also hired, in which it was intended to receive cholera patients from the low neighbourhoods, but it was never brought into use.

I am fully convinced that to the energy of the Mayor (Mr. Bowman) and Council, and of the medical practitioners, who were all most active in promoting these measures, a very large share in the arrest of the disease must be ascribed.

I was very anxious to ascertain if possible the share in this result which could be ascribed to the plan of mixing disinfectants with all discharges, so as possibly to destroy the virus. This plan was carried out very irregularly; in some houses it was done carefully, in others not. In the part of the town where it was least done, in the Rookery, the disease was worst; but then, as the people who live there are a very poor and dirty class, the other conditions were unfavourable. Certainly in several houses where the disinfectants were kept in the vessels which received the discharges there was no second case; and on the whole I am disposed to think this measure, imperfectly carried out as it was, had some effect.

#### IV. *Outbreak at St. Denys.*

St. Denys is a suburb of Southampton, and is built on a low-lying tract of land, close to the Itchen River. The soil is gravel and sand, with clay at a variable distance below; water is found very near the service. It is only very partially built over, the houses being scattered and placed in gardens. There is no drainage; all the refuse of the house goes into a dead well, which is often very close to the drinking water well.

A fatal case of cholera occurred here on the 8th of October; it was attended by Dr. Lake, who informs me that it was a genuine and well-marked case.

George Gannaway, aged 48, had been working for twelve months in the Northam building yard, (where the husband of Hembury and Mare worked, and where there had been an outbreak of diarrhoea). Six weeks before his death he had worked for a day on board a ship in the docks. On Thursday, October 5th, he was attacked with diarrhoea, which passed off, and on Saturday he thought himself nearly well. He worked all that day on his own premises where there was an open and badly-smelling drain. During the night he was uneasy in the bowels; had a stool at 6 a.m. on Sunday, October 8th, and at 7 a.m. was violently purged; soon afterwards cramps commenced, and incessant vomiting and purging. At 3.30 p.m., when seen by Dr. Lake, he was in a state of complete collapse; violent cramps; no pulse; voice altered; skin

livid; no urine; purging almost ceased; frequent vomiting. He died at 1 a.m. on Monday.

Dr. Lake could in no way discover how he could have come in contact with any cholera patients, but, as already stated, during September there had been outbreak of diarrhoea in the building yard where he worked.

The house is an airy cottage standing in a garden. As already noted, there is an offensive open drain. He was living, at the time of his attack, on home-cured pork and vegetables from his own garden.

I procured some drinking water from his well on the 16th October. At that time it was quite pure.

		Grains per gallon.
Mineral solids	- - - -	- 5.6
Volatile solids	- - - -	- 1.96
		<hr/>
Total solids	- - - -	- 7.56
Chloride of sodium	- - - -	- 1.51
Hardness (total) Clark's scale	- - - -	- 2.1

This was the water I was told he drank, but Dr. Lake wrote to me subsequently that he did not drink this water, but some from rain-water butt; the water in which was low, on account of the long drought.

The daughter of this man, Elizabeth Page, nursed her father, and after his death returned to her own house at Highfield, near Southampton. On her way home she was attacked with vomiting and purging, and then had decided symptoms of cholera. She subsequently died, after in part rallying from the collapse.

There were no other cases either at St. Denys or at Highfield, but there were several severe cases of diarrhoea near Gannaway's house.

#### V. Outbreak at Freemantle.

Freemantle is also a suburb of Southampton, and is not under the jurisdiction of the Southampton Board of Health. The place is totally undrained, and, as usual, everywhere in the neighbourhood the water is chiefly drawn from shallow surface wells, close to which are the dead wells, receiving all the refuse of the house.

After the attack had almost ceased in Southampton, viz., on the 14th October, and at intervals between that and November 4th, nine cases occurred here of whom no less than eight died. Their names will be found in the general list. I did not personally see any case, but I believe there was no doubt about the diagnoses. Samuel Bessant's case was well marked. Dr. Wilson, who attended the three Paynes, and who has seen cholera in the Mauritius, informs me their disease was most undoubted cholera.

Mary Anne Clement's case was seen by Dr. Griffin, who has given the following particulars:—

On Sunday, October 22nd, the girl was attacked quite suddenly, without premonitory diarrhoea. She had well-marked symptoms, and died on Tuesday morning (24th). Three days later the mother was attacked, and died on the 29th. Dr. Griffin inquired carefully into the causes of the attack, but could discern no source of infection. The father was the captain of a Channel Island steamer. He left his home on one of his usual voyages on the 20th, and returned home just after his daughter's death. There was no reason to think he could in any way have brought the infection.

The drinking water is drawn from a well about eight feet from the privy and dead well. It was stated to be good; but in the loose soil



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near Southampton sewage passes into wells at a much greater distance than eight feet. Unfortunately the water was not analyzed. The neighbours attributed the attack to the stench from a slaughter-house two doors distant.

Mr. Dayman informs me that Mary Anne Bowers lived close to the Clements. Mrs. Baker laid out the two Clements, close to whose house she also lived. I was unable to fully investigate the exact particulars of this outbreak.

VI. *Outbreak in Itchen.*

The village of Itchen is formed by a group of closely-packed houses, seated on an abrupt slope, which runs down from Pear Tree Green (100 feet above sea level) to the river Itchen, on the south bank of which it is placed, and by which it is separated from Southampton. The village is old, the houses badly built, and block the air from each other. Water is drawn from shallow wells, and is often highly impure. The means for removal of excreta are almost entirely absent, and the sewage flows in and sinks into the ground. In 1849 the village was scourged with cholera. In 1865 six cases are supposed to have occurred.

In one house, a little way removed from the village, and standing on a bank above it, two children died of choleraic symptoms supervening on typhoid fever. Dr. Lake, who attended them, has no doubt of the nature of the disease. Subsequently three or four cases occurred in Itchen. Two of these I saw, (Unwin and Emma Phillips,) and thought the diagnoses rather doubtful. Dr. Orsborn, however, who saw Unwin much earlier and more often than I did, has no doubt that it was cholera; and Dr. Summers is equally clear about the two Phillips.

I think it right to give the account with which Dr. Summers has favoured me.

" SIR,

Woolston, November 13, 1865.

" I BEG to furnish you with the particulars of two fatal cases of cholera that occurred at Itchen during the past fortnight.

" In both instances the patients were young children, brother and sister, and of the respective ages of  $2\frac{1}{2}$  and  $4\frac{1}{2}$  years. The youngest (a fine little boy) was seized at three o'clock on the morning of the 31st October with severe vomiting and purging, followed immediately by paleness and coldness of the whole surface, sunken eye, feeble pulse, tongue pale and dry, constant thirst, great restlessness, and paroxysms of severe cramp.

" So far as I could judge, scarcely any urine was passed, and the stools were of the usual rice-watery character.

" The treatment consisted in the administration of small doses of calomel at short intervals, followed by still smaller doses at longer intervals.

" To this was added the hot mustard bath, hot bricks, and fomentations to the bowels. The little fellow, however, never rallied, but sank at 5 p.m. the same day; 14 hours after the commencement of the attack.

" After death the body became very warm, and remained so for some hours.

" The features of the little girl's case were pretty much the same as those of her brother's, except that the disease did not prove so rapidly fatal. She was seized at exactly the same hour in the morning, and died at 9 p.m. on the following day; 42 hours from the commencement of the attack.

" As these deaths occurred in a house adjacent to others in which the same complaint prevailed, I thought it more than likely that some

local predisposing cause might be found in connection with the drainage and drinking water.

"With this object in view I sought out the well from which the inhabitants of these houses obtain their supply of water, and found it situated at the bottom of a slope, and in far too close proximity to a privy. The well itself is only about four feet deep, and is in fact nothing more than a reservoir for the surface drainage. Under these circumstances the following results I obtained from an examination of the water will not cause much surprise.

"The qualitative examination gave evidence of organic matter, chlorine, sulphuric, nitric, and nitrous acids, and traces of phosphoric acid and ammonia.

"1 imperial gallon evaporated to dryness gave a residue of 66 grains, 14 grains of which were lost by incineration. The total hardness, as expressed by Clarke's scale, was  $16^{\circ}27$ ; boiling reduced it to only  $1^{\circ} = 15\cdot27$ ; chlorides were present to the extent of  $11\cdot515$  grains per gallon.

"Apologizing for the length and incompleteness of this report,

"I am, sir,

"Your obedient servant,

"S. SUMMERS."

Is it possible that all these last cases at Itchen may have been instances of severe choleraic diarrhoea from impure water? Then the difficult question as to the relation of this disease with true Asiatic cholera arises.

If the disease in Itchen was true cholera it may appear singular why it should have died out. Every local circumstance but one would seem likely to aid its propagation and diffusion, but no more cases occurred.

The one possible cause for its cessation would be that on the 19th October there was a very heavy fall of rain ( $1\cdot37$  inches); from the 21st to the end of the month there was heavy rain every day, the whole amounting to no less than  $4\cdot1$  inches in the 11 days, or  $5\cdot47$  inches from the 19th to the 31st. This torrent of rain would carry everything away down the steep Itchen slope, and would purify the ground as well as probably refill the wells. If this was not the cause of the cessation no other obvious reason can be assigned.

## CHAPTER II.

### GENERAL OBSERVATIONS.

#### § I.

##### I. *Diagnosis.*

1. The diagnosis of the disease just described does not present any difficulty. A disease with such symptoms, and with a mortality of nearly 60 per cent. could hardly receive any name but that of Asiatic cholera. It is true that every year in the Registrar General's returns for London there appear deaths referred to "cholera" after illnesses of short duration. But they are few in number even out of the vast population in London, and the exact relationship of such cases to Asiatic cholera has never been yet definitely settled.

In Southampton it is certain that a sporadic disease of this kind is exceedingly rare. When it has occurred (in one instance only as far as is known) it was localised, and evidently depended on some special local conditions. But such an occurrence is quite different from the kind of outbreaks just described, which occurred in six different

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localities, and in houses often widely separated, and which had no conditions in common.

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In order to give a comparison with former years I procured from the Registrar of Deaths in the district of Southampton a list of deaths for September and October in the years 1861-65 inclusive, which were registered as cholera :—

YEARS.	In the District of Southampton, Deaths from Cholera.	
	September.	October.
1861 - - - -	1 (Cholera biliosa) 8 days	0
1862 - - - -	0	0
1863 - - - -	0	0
1864 - - - -	0	0
1865 - - - -	3 called { Summer - Spasmodic - Asiatic - }	13

These returns show that in ordinary years nothing like a fatal choleraic disease prevails in Southampton. On this point, and also in respect of the nature of the disease in 1865, I requested the opinions of some medical gentlemen in Southampton, where some of them have practised for more than 25 years.

Dr. Joseph Bullar, who is well known as one of the most distinguished of our provincial physicians, writes to me :—

“I have never seen a case of this disease since 1862 in Dublin, and 1849 in Southampton, where it was then very fatal through the months of July, August, and September. The first case I saw here (in 1865) in a man who recovered was so characteristic that I had no doubt on the matter. I have never seen any cases of this disease during autumnal cholera. To state it more distinctly, I have never seen cases of rice-water purging and vomiting, severe cramps, rapid failure of the heart’s action, depression of the bodily temperature, livid skin, shrinking of the skin of the extremities, sinking of the eye-balls, suppression of urine, all combined in the common autumnal cholera.”

Dr. Wiblin, the quarantine officer, and a gentleman of very large and long experience, writes :—

“In answer to your first question, Have you in ordinary (*i.e.* non-cholera) years seen any cases like those of cholera we have lately had here? I have to inform you that I have never seen nor treated cases of cholera bearing any resemblance to the cholera cases which have recently prevailed here, unless it has been during those years only of an epidemic form of pestilential or Asiatic cholera.

“In replying to your second question. Do cases of summer or English cholera assume a similar form in Southampton? I have to state that my experience and observations as a physician, during a period of more than a quarter of a century that my acquaintance with the literature of cholera outbreaks, in most of the cholera stricken countries of all parts of the world, that my knowledge of the pathognomonic signs which characterize bilious, spasmodic, and pestilential cholera fully and completely justify me in asserting that the recent visitation of cholera at Southampton bears no resemblance or similarity to the cases of ordinary summer or English cholera which occur in this or any other town in England.



"In conclusion I may also venture to state, that the diagnostic symptoms of the late visitation of cholera in Southampton have been so unequivocal in character, and so closely allied to the malignant or pestilential form of this disorder, that I am quite at a loss to conceive how any one of ordinary penetration or discrimination could mistake this disease for Sydenham's or any other author's description of summer, bilious, spasmodic, or English cholera.

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Mr. Dayman, also a gentleman who has practised for many years near Southampton, writes:—

"Before answering your question, I may venture to tell you that I have witnessed and attended cases of Oriental cholera in all the outbreaks of this disease that have occurred in England since 1831. I therefore think I know a case of what has always been called in these epidemics Asiatic cholera."

Mr. Dayman then goes on to describe three cases of unequivocal Asiatic cholera, which, he says, were unlike any case of the severest English cholera he has seen; the principal distinctive sign being the absence, or almost absence, of the pulse.

Dr. Bencraft writes:—

"I would direct your attention to the fact, after being engaged in very extensive practice in Southampton for nine years, having at that time the charge of nearly half the town, and consequently in the summer months having to treat a great number of cases of diarrhoea, I never saw a single case in the slightest degree resembling those of 1865, not one with rice-water purging and algide symptoms."

Dr. Cheesman, who has a very large poor district in Southampton to attend, also informs me, that in ordinary (non-cholera) years he never saw cases like those which he attended in September and October. Dr. Griffin's statement is to the same effect.

Dr. Lake, who has also practised in Southampton for several years, says:—

"I saw several cases of cholera on board the "Dreadnought" in 1849, and I attended two other cases in Southampton in 1854, when a few cases of cholera, occurred here; with those exceptions I have never seen anything like these cases (those of 1865); indeed it appears to me that there is something so striking about a true case of cholera that once seen it is not likely either to be forgotten or mistaken again."

Dr. Scott says:—

"I do not remember seeing any cases of choleraic diarrhoea in Southampton until this last autumn."

With respect to Bitterne and its neighbourhood, Dr. Orsborn has never seen any disease at all like that which occurred in September and October, during more than 20 years' practice, except in cholera years (1849 and 1854), and in the instance of a singular local outbreak at Woolston, near Southampton, in 1859. This evidence is sufficient to show the extreme rarity in Southampton of any disease like Asiatic cholera, still it would appear that cases resembling it may occur under certain exceptional local conditions.

Mr. Sampson, who has practised for many years in Southampton, after informing me that, with the exception of the previous epidemic in 1849, and of a case in 1854 (cholera years), he never saw any cases like those of 1865 in Southampton, states that in 1859 an outbreak of cholera occurred at the Woolston Coast-guard Station (on the east side of the Itchen River), and he has kindly given me the following particulars. This outbreak is that to which Dr. Orsborn referred.

"In the summer of 1859, diarrhœa prevailed at the Woolston Coast-guard Station from July 3rd to the 17th. On that day S. Burt and T. Grant, assisted by five other men from the station, crossed the Southampton Water to Hythe, to assist in carrying to the grave one of their comrades, who was registered as having died of phthisis. The following morning, July 18th, Burt and Adams left home at four o'clock to go on board the cutter "Harpie," moored in the Southampton Water. Whilst on board Adams was seized with violent cramps in the stomach, sickness and purging; Burt waited on him, and in an hour after was attacked with the same symptoms. They were brought home to the Woolston Coast-guard Station at 8 o'clock, and were soon after seen by Dr. Maddox, who found Burt in the collapse-stage of Asiatic cholera. He died the following morning. Adams had choleraic diarrhœa, and recovered.

"T. Fielder, aged 69, staying with Adams, was found in the collapsed stage of cholera the same afternoon. He died in 30 hours.

"On the 21st July, the families, consisting of 40 persons, were placed under tents in an adjoining field. Adams the son, 10 years of age, who occupied the tent next the station, was said to have had a severe attack of diarrhœa on the 22nd July. On the 26th Mrs. Adams, the mother, was attacked with symptoms of cholera in the afternoon, and was perfectly collapsed at 1 p.m. the following morning. She made a good recovery under calomel treatment. On the 30th Mrs. Buzzecatt, who occupied a tent about 200 yards from the station, was reported to have choleraic diarrhœa; no collapse. She quickly recovered under small doses of calomel. Nearly all the inmates of the station had diarrhœa during the outbreak. The privies were in a filthy condition; the water good. The registrar, the collector of customs, the quarantine officer, and the dock master, all declared they had not heard of a single case of cholera in the locality during the summer."

In this case the localised character of the disease looks very like a case of water poisoning, although the water is stated to have been good. I have been informed that the privies had overflowed, and the sewage ran over the ground and close to the houses, and caused offensive effluvia. I have also been told that it is probable the water was really impure, and was perhaps contaminated by the overflow of the privies.

Dr. Langstaffe had been kind enough to give me the particulars of a case which occurred in his practice in August 1865. A young woman, aged 23, suffered from diarrhœa for a week, which she attributed to having eaten crab. When seen by Dr. Langstaffe on August 12th, she was suffering with cramp in the stomach and extremities; vomiting and purging of "rice-water evacuations;" great prostration; blueness of the nails; whispering voice; suppression of urine for two days. On the 3rd August vomiting and cramps ceased; circulation began to return, and she recovered.

Dr. Langstaffe at first thought this to be an exceptional case of summer cholera, perhaps produced by eating decomposing crab, but he is now inclined to consider it true Asiatic cholera. He informs me that the patient is a shopwoman serving in a large shop, chiefly frequented by the poor people. At all times infectious diseases not unfrequently appear among the shop people, evidently derived from their customers.

With the exception of this case, Dr. Langstaffe has never seen any cases in Southampton like those of the last autumn.

## § II.

II.—*Origin of the Disease.*

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That a special cause must produce this disease, with its well-marked localization, and its capability of spread and transport, is now, I believe, universally admitted. If this be so, the question narrows itself to this, is the agency or cause always (in European countries) brought into a place, or is it spontaneously produced there? If the former be true, is it always brought by the movement of men, or does it travel with the air or in any other way? If the latter, what are the exact atmospheric and local conditions necessary for the production of the agent?

During the last 15 years the evidence which has been brought forward to show that the movement of men is one of the great means by which the poison is spread from place to place, has become very strong. It has certainly given great weight to the opinions of those who believe they can trace even from the first record of the great Indian outbreak in 1817 the action of this condition. In this place, however, my object is not to discuss the very difficult problem connected with the spread of cholera, but simply to see what facts the outbreak at Southampton can add to our knowledge of the subject.

The origin in Southampton is considered under the following heads :

1. Was it introduced from the Mediterranean by the commerce by sea?
2. Was it brought by the agency of the wind?
3. Was it generated by unfavourable local circumstances, coinciding with unusual atmospheric conditions?
4. Was it produced by some peculiar atmospheric or meteorological or epidemic condition?

A.—*Was the disease introduced from the Mediterranean?*

The fact that the disease should have appeared at Southampton, at the port of arrival of the steamers from Alexandria, Malta, and Gibraltar, where cholera was prevailing, will seem to many a strong argument for its introduction in this way. Long before the disease appeared, predictions were made that on this occasion Southampton, and not Hull or London, would be the first place affected in England. The remarkable fulfilment of the prophecy will seem to many persons sufficient evidence. And as an additional reason why the disease might be introduced into several localities at the same time, is the fact that immediately the steamers arrive in Southampton their crews disperse to different parts of the town and the villages round, so that considerable opportunity is given for the dissemination of any disease which is capable of being carried from place to place. Let us see what evidence can be obtained on this point.

In answer to some questions I put to him, Dr. Wiblin,\* the medical superintendent of quarantine for the port of Southampton has addressed me the following letter :—

“ Southampton,  
 24th November 1865.

“ Dear sir,

“ In compliance with the request contained in your communication of the 17th instant, I beg to forward you the following answers to your interrogatories.”

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\* I have to thank Dr. Wiblin for much valuable assistance in this inquiry.



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**“ Question 1.** Furnish the names of the vessels which have arrived at Southampton from the Mediterranean ports since the 31st May 1865, the dates of departure from such ports, and the respective dates of their arrival at Southampton.

**“ Answer 1.**

	Departures from			Arrival at Southampton.
	Alexandria.	Malta.	Gibraltar.	
“ Ripon ” -	May 19 -	May 22 -	May 26 -	May 31
“ Pera ” -	“ 28 -	“ 31 -	June 4 -	June 9
“ Massilia ” -	June 9 -	June 12 -	“ 16 -	“ 20
“ Delhi ” -	—	“ 12 -	“ 16 -	“ 21
“ Syria ” -	“ 28 -	July 2 -	July 6 -	July 10
“ Ellora ” -	—	“ 1 -	“ 8 -	“ 10
“ Nyanza ” -	July 8 -	“ 13 -	“ 17 -	“ 22
“ Delta ” -	“ 22 -	“ 26 -	Aug. 1 -	Aug. 7
“ Ceylon ” -	“ 27 -	“ 31 -	“ 5 -	“ 10
“ Poonah ” -	“ 29 -	Aug. 1 -	“ 5 -	“ 11
“ Ripon ” -	Aug. 7 -	“ 11 -	“ 16 -	“ 21
“ Euxine ” -	“ 14 -	“ 18 -	“ 23 -	“ 28
“ Pera ” -	“ 19 -	“ 23 -	“ 27 -	Sept. 1
“ Massilia ” -	“ 28 -	Sept. 1 -	Sept. 13 -	Oct. 6
“ Syria ” -	Sept. 7 -	“ 11 -	Oct. 14 -	“ 20
“ Nyanza ” -	“ 18 -	“ 22 -	Sept. 26 -	“ 1
“ Delta ” -	—	“ 1 -	“ 6 -	Sept. 11
“ Ceylon ” -	—	“ 12 -	“ 16 -	“ 21
“ Poonah ” -	Oct. 8 -	Oct. 12 -	Oct. 16 -	Oct. 22
“ Ripon ” -	“ 14 -	“ 18 -	“ 23 -	“ 28
“ Tanjore ” -	“ 20 -	“ 24 -	“ 29 -	Nov. 4
“ Mongolia ” -	“ 29 -	Nov. 1 -	Nov. 6 -	“ 12
“ Pera ” -	Nov. 3 -	“ 7 -	“ 11 -	“ 15

**“ Question 2.** Did cholera prevail on board any of these vessels during their homeward voyages, and if so, when and to what extent ?

**“ Answer 2.** Three passengers and one employé of the Company died on their homeward voyage from Alexandria to Southampton.

Name.	Ship.	Age.	Date.
Powell, T., Steward -	“ Ellora ” -	26	June 24
Glendinning, A. -	“ Ellora ” -	—	“ 30
Nathan, P. -	“ Nianza ” -	19	July 9
Ives, Thomas -	“ Nianza ” -	22	“ 17

Three employés of the Company died on board of the “ Nianza ” during her voyage from Marseilles to Alexandria.

Name.	Employment.	Age.	Date.
Lovell, R. -	Fireman -	28	Aug. 29
Coleburne, F. -	A. B. -	29	Sept. 6
Beale, R. -	Fireman -	38	“ 6

**“ Question 3.** Can you inform me whether any cases of cholera or diarrhoea have been landed at Southampton from any vessel since the 1st June 1865, and if so, at what date, and what became of such case or cases ?

"*Answer 3.* From the most careful inquiries instituted, I am unable to ascertain that any cases either of cholera or diarrhœa have been landed at the port of Southampton.

"*Question 4.* Be good enough to state the exact particulars of the 'Vectis' which is reported to have broken the quarantine at Gibraltar, and whether any cases of cholera or diarrhœa occurred on board that steamer?"

"*Answer 4.*—Some misapprehension exists as to the real facts connected with the conduct of the captain and pilot of this vessel.

"The 'Vectis' sailed from Alexandria on the 5th September for England. She arrived at Malta on the ninth, and left the same day for Gibraltar, off which place she anchored on the 14th of that month. She sailed from Gibraltar on the 16th, and reached Southampton on the 21st.

"The 'Vectis' was in quarantine at Malta and Gibraltar, and on her arrival at this port she steamed up the river and entered the docks, without paying any regard to the quarantine regulations invariably observed under similar circumstances. For this breach of the quarantine laws the conduct of the captain and pilot was reported to the collector of customs, and the case was subsequently referred to Her Majesty's Commissioners of Customs, for their consideration and adjudication. Dr. Hunter, the surgeon of the ship, informs me that neither cholera nor diarrhœa prevailed on board the vessel during the homeward voyage.

"From the returns most courteously supplied to me by the managing directors of the Peninsular and Oriental Steam Navigation Company, it will be observed, that although 23 steamers sailed from Alexandria, bound for Malta, Gibraltar and Southampton, at a time when cholera was committing the most serious ravages amongst the populations of those places, yet there were but two vessels, viz., the 'Ellora' and the 'Nyanza,' on board of which seven deaths from cholera were recorded; and as no reference has been made to the treatment of diarrhœa in the journals of the medical officers, I naturally infer that no cases of importance came under their observations.\*

"Without venturing on this occasion to express any opinion as to the part which such repeated arrivals of vessels from places terribly stricken with and actually suffering from cholera would play in the transmission of the disease to a healthy population, I cannot refrain from observing that the outbreaks of cholera from which Southampton has so recently suffered has been characterized by the same general law of propagation which has been noticed on similar and previous visitations of the disease, viz., that this scourge invariably follows in the great thoroughfares of travel and commercial intercourse. Nor will the occasion be deemed inopportune, I trust, to quote here the observations of the late Dr. Snow on the same point. He says in his work, 'On the mode of Communication of Cholera:'—

"'There are certain circumstances, however, connected with the progress of cholera, which may be stated in a general way; it travels along the great tracks of human intercourse, never going faster than people travel, and generally much more slowly. In extending to a fresh island or continent, it always appears first at a seaport. It never attacks crews of ships going from a country free from cholera to one where the disease is prevailing, till they have entered a port, or had intercourse with the shore. Its exact progress from town to town cannot always be traced; but it has never appeared except where there has been ample opportunity for it to be conveyed by human intercourse.

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\* Dr. Wiblin obtained afterwards some information which modifies this statement.

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"Deeply impressed as every inquirer must be who attempts to investigate the circumstances under which cholera may be transmitted to a healthy population, I consider it proper to bring under your notice one of the many ways by which the disease may be communicated, (although I am well aware you are thoroughly conversant with the fact,) viz., by the introduction into a community, of the clothing and other effects of persons having died from that disorder. Such articles of clothing and effects are generally sent home to the shipping master of the port of arrival, and he is charged with their safe keeping and distribution.

"About 10 days ago I addressed a note to Mr. Coxwell, the shipping master of this port, to furnish me with the names of the persons who had died of cholera since 30th June to 31st October 1865, whose effects were sent to his care, and the addresses of the persons to whom such effects were delivered. He at once furnished me with the following tabular form :—

Name of Ship.	Date of Arrival.	Name of Deceased.	To whom delivered, and where.
Ellora -	July 10, 1865 -	Frederick Powell -	Shipping Master, Poole.
Nyanza -	October 1, 1865 -	Robert Beale -	Martha Beale, 68, Bevis Street, Southampton.
" -	" -	Frederick Coleburn	Emma Coleburn, 35, Dock Street, Southampton.
" -	" -	Robert Lovell -	1 bag still in possession of Shipping Master.

"The important bearing which such a statement possesses in relation to the origin and propagation of an outbreak of cholera, which might be otherwise considered of the most mysterious origin, cannot in my opinion be over estimated.

"I regret to say that in consequence of the imperfect means at my command of obtaining proper answers to the quarantine questions, that this communication fails to adduce evidence of very many important points connected with the development and spread of the present outbreak of cholera. I therefore avail myself of this opportunity to suggest to the medical officer of the Privy Council the positive necessity that some more extended and perfect system of inquiry should be instituted, and that the officers of the Royal Mail and Peninsular and Oriental steamers which frequent this port should be requested to furnish the fullest possible particulars to the Medical Superintendent of Quarantine, whenever cholera, yellow fever, or any other disease of an important character prevails either at the ports of departure or on shipboard during their outward or homeward voyage.

"A concise record of the meteorological phenomena such as temperature rainfall, barometric pressure, thunderstorms, humidity of the atmosphere, direction of the wind, &c., might be kept by the gentlemen referred to, and I need not point out to you that observations of such a nature would be specially valuable to scientific and professional men, and that they ought at all times to be at the command of our governmental authorities.

"I am, dear sir,

"Your obedient servant,

(Signed) "JOHN WIBLIN,

"Medical Superintendent of Quarantine.

"To E. A. Parkes, Esq., M.D."



In a subsequent communication, Dr. Wiblin informs me, in reply to a question whether any ordinary or fruit vessel of commerce had arrived from any Mediterranean port, that one vessel, the "Avon," had come into Southampton from Trieste, on the 28th August, and that no cholera had occurred on board that vessel.

It will be seen then that two vessels of the Peninsular and Oriental fleet had fatal cases of cholera on board.

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### 1. *The Case of the Ellora.*

On the homeward voyage from Alexandria, June 28th to July 10th, this vessel lost one passenger and a steward. The passenger (a woman) died on the 30th June. Besides these two cases, the child of the passenger was seized with cholera on the 4th July, but was considered convalescent on the 8th. In addition, Dr. Wiblin has forwarded me a communication from Dr. Miller, the surgeon of the *Ellora*, received since his letter was written, to the effect that between the 21st June and 8th July no less than 31 cases of diarrhœa occurred, 18 among the men, and 13 among the passengers, the last case being on the 8th of July, only two days before the *Ellora* entered Southampton. In two of these cases there were rice-water stools. In addition, an infant, died on the 8th of July from mesenteric diarrhœa; and it is believed that another child died with actual cholera in the port of Southampton. Now it is certain that many cases of so-called diarrhœa occurring in this way are really cases of slight cholera, and many instances are known of cholera being transmitted by such diarrhœa. It seems clear, looking at the dates, that both passengers and crew of the "*Ellora*" must have landed with diarrhœa (more properly called cholera), or having certainly only just recovered from it. Then these persons, the crew in particular, would disperse over Southampton, and their discharges might spread the disease.

Still, it is not quite proved that this diarrhœa was cholera, and I have been able to get no evidence that any disease did follow these men to their abodes. I have made inquiries of the district medical officers (Dr. Bencraft and Dr. Cheesman), who would have been likely to treat any of the sailors with diarrhœa, and they both state that they had no cases of diarrhœa among any of the crew of these or other steamers. The time also is rather long between the 10th July and the 17th September, when *Rose* began to suffer from diarrhœa (cholera).

### 2. *The Cases of the "Nyanza."*

The "*Nyanza*" had cases on board on two occasions. Two passengers died on the 9th and 17th July. This is a later date than the cases of the "*Ellora*," and the last death occurred only five days before reaching England. I am informed by Dr. Wiblin that there was also diarrhœa among the passengers and crew, and I think there can be little doubt that some of these were slight cases of cholera. So that we may consider it very likely that persons must have landed while still suffering from diarrhœa.

On the second occasion the "*Nyanza*" lost three seaman on the 29th August, 4th September and 6th September respectively. She was at Marseilles on the two first-named dates, and at sea on the last, en route for Alexandria, which place she left on the 18th September, and reached Southampton on the 1st October. This was after there had been several cases in Southampton and its neighbourhood, so that the "*Nyanza*" could have had no share in introducing the disease on this second occasion. No other homeward vessel had deaths from cholera.

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We have then two cases in which cholera prevailed on board. The "Ellora" ran into Southampton with diarrhœa, or, to use the proper word, cholera, on board; the "Nyanza" had had a death from cholera only five days before arrival, and there had also been diarrhœa (cholera), among her officers and crew.

The respective dates of arrivals were the 10th and 22nd July.

The two first possible cases of cholera were Dr. Langstaffe's at Southampton, and Dr. Osborn's at Itchen, in the middle or end of August. The first undoubted case was that of Rose in Southampton on the 22d (17th ?) September, and of Hill at Weston Common on the 21st September.

With respect to diarrhœa on board the steamers, it appears that several vessels had cases, in many instances very severe ones. The "Pera," which arrived in Southampton on the 1st September, and the "Delta," which arrived on the 11th September, both embarked passengers at Alexandria who had diarrhœa then or subsequently, and several of the crew also suffered. Some of these persons are noted as discharged from the record of sick on the very day of arrival at Southampton, so that possibly their disease was not actually well then.

Here the direct evidence stops, and I am at present unable to bring it closer. I cannot decidedly learn that any cases of cholera or diarrhœa were known to be landed from these or other steamers. Drs. Bencraft and Cheesman, who would be most likely to have seen them, treated, as far as they can remember, no cases of diarrhœa in any of the crews of the Peninsular and Oriental boats.

All this part of the evidence is negative.

The force of this negative evidence is weakened by the fact that the inquiries into the existence of diarrhœa or cholera in persons landing from these steamers was made months after the events. It was not known even to the quarantine officer till months afterwards that the "Ellora" ran into Southampton with cases of suspicious diarrhœa on board, and after having lost cases from cholera. Consequently no steps whatever were taken to trace out the possible introduction in this way, and when in October and November inquiries were set on foot it was too late. If the "Delta" had had cases of cholera on board, its arrival in Southampton (Sept. 11th) would have coincided with the outbreak of cholera in the town; but then of course there is the uncertainty whether we are justified in considering the cases of diarrhœa on board that vessel to have been really choleraic. My own opinion is certainly very much in favour of the view which would look on the diarrhœa on board as really choleric.

I do not attach great weight to the negative evidence. The important evidence would have been, the positive assurance that all the crew and passengers were healthy, and could not have communicated the cholera.

The following considerations seem important enough to be noted:—

The earliest cases at Weston, Bitterne (Standly the boy being considered to be first ill) and Southampton were in persons who from the nature of their lives were more exposed to the chances of contagion than the rest of the community.

The first case at Weston Common was in a boy who was engaged in carrying coals, and in the smaller cottages the coal shed is frequently close to the privy. Admit that there was slight cholera really in the cottages of the sailors of the steamers, this boy was likely to have been exposed to the influence of the discharges.

The first case at Bitterne was (possibly) in a boy employed on the railway which is being made from Southampton to Netley, but who

had been going about in search of work. A wandering life of this kind of course increases the chances of possible infection.

The first case at Southampton was either in a woman, who from the nature of her occupation is especially exposed to the emanations from the poorer class of persons; or if Rose be the first, then this man, living in a small ill-ventilated house, and using what is really a public privy, may be supposed to have had greater chances of exposure to diarrhoeal emanations than the majority of his neighbours. The privy is common to seamen and the frequenters of the theatre, and the brothels only a few yards off, and is besides the receptacle of the excreta of nearly twenty tenements.

But direct evidence of such infection cannot be given, and many persons will see little force in any considerations which fall short of this. I am obliged to leave that part of my subject in this unsatisfactory position, without being able absolutely to prove or disprove.

With regard to the introduction by clothes, it will have been seen that the clothes of the men who died on board the "Ellora" were sent to Poole, and could therefore have had no effect on the Southampton outbreak. The clothes of Beal and Coleburne of the "Nyanza" were sent to Southampton, but did not arrive till after the 1st October, at which time several cases of cholera had occurred. The clothes of the passengers or those of the persons who had diarrhoea cannot be traced. In the cases of the crew, the clothes would be washed especially in the villages round Southampton, where so many of them live. No evidence has so far been obtained that any disease arose in this way.

There is one very important point in the history of cholera which must not be omitted. It seems clear, not only that persons with choleraic diarrhoea (which is in fact cholera) can cause the disease, but that persons coming from cholera districts, and not themselves ill in any way, can give cholera to other persons.

Dr. Rodriguès Barrant\* has lately given some fresh evidence on this point, which seems unusually free from ambiguity. When the cholera prevailed in the Mauritius, coolies coming from infected districts, and being themselves healthy (*ils n'avaient aucun signe visible de l'existence de la maladie*), communicated cholera to newly arrived coolies who had been perfectly free from the disease; and this occurred not once, but on three occasions. It seems, therefore, possible that persons landing from a steamer in which cholera had prevailed might cause the disease; but then this could not have been the case in Southampton, as the persons living with the sailors have not especially suffered. Moreover, all the cases known of transport in this way, the carriers of the disease, have been dirty coolies, or camp followers, or pilgrims, who have often been collected in considerable numbers. The chances of conveyance by the healthy passengers or crew of a steamer must be very small.

Another mode in which cholera, like yellow fever, has been supposed to be carried, is in the atmosphere of a ship. A ship on board which cases of cholera have lately occurred may be supposed to carry an impure atmosphere for several days, especially in the lower cabin and hold, where the change of air is very slow. But is it possible to suppose that such an atmosphere diffused into the general atmosphere of a seaport town could give rise to an epidemic cholera? That seems unlikely, nor am I acquainted with any evidence on the point.

Such then is all the evidence I have been able to collect bearing on

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\* "Essai sur la Nature et le Traitement du Cholera," par A. Rodriguès-Barrant, M.D.; Edin., Maurice, 1863, p. 10.



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importation. We will see hereafter whether we have a better chance of explaining the epidemic by this means than by any other mode.

As respects evidences of one person taking the disease from another, we have the following possible instances :—

1. The successive cases at Weston Common.
2. The case of Harriet King and Vashti Butt at Bitterne succeeding the Standleys.
3. The case of Charlotte Moore and Jessie Sherlock succeeding Julia Burton, and of that of Mrs. Englefield succeeding Mrs. Hembury and Mare in Southampton.
4. The case of the daughter of George Gannaway in St. Denys succeeding her father.
5. The cases of Mrs. Clements and Mrs. Baker succeeding the case of Mary Anne Clements.

The details are given under the different chapters. Of course, it is so difficult to exclude the operation of the local conditions, that evidence of communication is never very certain unless it is distinctly introduced into an altogether fresh locality. Still it is necessary not to overlook the fact that in every locality there was some slight evidence of the disease in some persons being derived from a previous case.

I cannot leave this part of my subject, however, without referring to a matter of great importance.

In his letter to me the medical officer of quarantine refers to "the imperfect" means at his command of obtaining proper answers to the "quarantine questions." It may easily be conceived that in a large commercial port like Southampton the trading community looks with great jealousy on any medical creed which seems in any way to interfere with trade. It is not, I presume, that there would be any wilful concealment of facts, but rather an indisposition to have them recognized, and a reticence in giving an account of what has occurred on the voyage. The consequence of this has been that all chance of actually tracing the disease, supposing it was imported, was taken away. Vessels came in, and no soul in Southampton except the officials of the steam packet company knew what had taken place on board. It was not till December that the quarantine officer learned that suspicious cases of diarrhoea and choleraic diarrhoea had existed among the crew and passengers of the "Ellora" up to two days before entering the port. Herein I believe will be found to lie the difficulty of tracing the introduction of cholera on this occasion. I am not sure now that we have got the real facts of what has taken place on board the vessels entering the port.

Whatever measures may be taken to destroy all risk of importing a disease, and I believe these measures might be simple, and interfere little with trade, we have at any rate a right to demand that the exact truth should be made known without delay or reserve, and that the medical officer who has to watch over the health of the port shall have power to obtain the information necessary to enable him to fulfil the duties of his office.

*B.—Was the Poison of the Disease brought to Southampton by the Wind?*

It has been generally admitted that when cholera largely prevails in a place, and when consequently the air is charged with exhalations (arising especially from the drying and decomposing discharges), the wind will carry the poison to some little distance. But in order that this cause may be acting it is essential that the two localities should be

near to each other. The cases of ships attacked in the Atlantic seem now capable of explanation in another way. We now know that the incubative period of cholera and that the earliest diarrhoeal stage may be prolonged, so that a period of 20 to 30 days between a ship leaving a port and an outbreak of cholera is no evidence of spontaneous origin. Indeed it is probable that a very short distance will give immunity, otherwise the escape of neighbouring parts of a town would be inexplicable. Now in Southampton there was no neighbouring place affected with cholera. The prevalent direction of the wind during the first 22 days of September was westerly (9 days), southerly (5 days), easterly (4 days), and northerly or a calm the remainder. The rapidity of movement was moderate. On the 17th, when Rose began to have diarrhoea, the wind was from the north; on the 16th from the west; on the 15th and 14th from the east and south. It was therefore blowing in all directions, and we can safely exclude the agency of the wind.

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*C.—Was the Cholera in Southampton generated by unfavourable Local Conditions, coinciding with unusual Meteorological Conditions?*

The weather in September 1865 was distinguished by an excess of mean temperature ( $+7^{\circ} \cdot 23$  over the average of four preceding years), and a very small rainfall, 0·133 inches instead of 2·638 inches, the average of the four previous years. The air was however very little relatively drier than usual, the mean relative humidity being 73·5 per cent. at the Ordnance Office, as against 76·6 in the four previous years; and the absolute amount of watery vapour was slightly greater than common. The barometer was slightly higher than usual ( $+ \cdot 306$  inches over the average of four preceding years). The amount of ozone was almost absolutely the same as in the four previous years, being at the Ordnance Office 3·2, as against 3·27 on a scale of 0—10; at Netley it was 3·6. These points are more fully given in the annexed table, which Sir Henry James has kindly given me. At Netley the mean relative humidity was 79·6 per cent. of saturation, and the weight of a cubic foot of vapour 5·2 grains.

ABSTRACT from the Meteorological Register of the Ordnance Survey Office, Southampton.

YEAR.	Mean Height of the Barometer at 32 degrees, and corrected for Altitude above Sea Level.		Mean Temperature of the Air.		Mean Maximum Temperature of the Air.		Mean Minimum Temperature of the Air.		Humidity 0-1.		Total Quantity of Rain in Inches on the Ground.		Mean Amount of Ozone 0-10.	
	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1861	30·056	29·895	64·0	59·4	70·4	65·2	55·3	50·1	0·768	0·767	0·873	3·071	3·2	2·8
1862	29·966	30·023	62·0	59·8	68·4	66·0	50·8	51·3	0·747	0·787	1·433	1·165	3·3	3·3
1863	29·924	29·878	63·4	55·9	69·8	61·4	55·5	47·4	0·756	0·755	2·511	3·888	5·0	4·4
1864	30·098	29·953	62·5	59·6	69·7	65·3	50·3	51·1	0·634	0·758	0·806	2·430	2·9	2·6
1865	29·905	30·243	62·4	65·9	67·9	72·7	52·5	54·2	0·746	0·735	5·063	0·133	5·3	3·2

*Note.*—The columns marked 1, 2, 3, 4, 9, and 10, are the means of the 9·3 a.m., 3·30 p.m., and 9·30 p.m. observations.

The mean minimum temperature of the air and rain are registered at 9·30 a.m. only.

Columns 13 and 14 are the mean measures of ozone, registered every 24 hours at 9·30 a.m.

The last papers used are those prepared by Dr. Moffatt.

(Signed) HENRY JAMES,  
Colonel Royal Engineers.

26th December 1865.

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The movement of the air was at Netley at the mean rate of 161 miles in 24 hours or 6·7 miles per hour, which is rather less than in September 1864, when it was 249 miles in 24 hours. The effect of these conditions was not to render the air drier, but to cause more evaporation from the large expanse of water which surrounds Southampton. Whether the small fall of rain lowered the level of subsoil or ground water is quite uncertain. There had been in August a great excess of rain, viz., 5·063 inches at the Ordnance Office, as against 1·405 inches, the average for August in the four previous years. There was no evidence of want of water in the wells of the villages. During August the temperature of the air was half a degree below the mean of the previous four years (62·4 as against 62·97); the ozone was in slight excess; the relative humidity was almost the same as usual (74·6 per cent. of saturation, as against an average of 72·4 per cent.), and in fact all the mean meteorological elements were practically the same as in other years, except as regards the rainfall, which was in great excess. It will therefore be seen that at Southampton during August there was no unusual meteorological condition, except an excess of rain, and during September there was unusual heat and want of rain.

The modes in which the meteorological conditions of September might take effect would be I conceive as follows:—

1. The prolonged drought of September might render the drinking water of springs and wells impure; but practically it did not do so, as far as our present inquiry is concerned, for in the cholera districts the water was either pure (as at Weston Common and Southampton), or was impure from causes acting always, and not only in that particular September.

2. The drought might have lowered the level of the subsoil water (though there is no evidence of this), and thus exposed more of the constituents of the soil to the influence of the excessive temperature. If there was no failure of water in the surface wells, it is not likely the subsoil water was lowered; but if this had been the case, and had anything to do with the cholera, it would surely have shown itself in places where the impurity of the ground was the greatest, which was not the case, and would have been much more universally diffused. Besides, if this cause could produce it, cholera would have occurred in former years, when the drought was equally long, and at a time of the year when the temperature was higher.

3. The continued excess of high temperature might have caused an excess of exhalations from the mud-banks which surround Southampton; but then these banks are never dry; they are covered nearly half the 24 hours with water, and are overflowed with the tide four times daily. The places most exposed to such exhalations, if they existed, did not suffer from cholera, and there was nowhere any appearance of malarious complaints which would certainly have shown themselves had there been any exhalations of this kind. Add to all this, that the experience of other parts of the world proves that cholera does not arise from meteorological and terrestrial conditions similar to those of Southampton, and I believe all will conclude that the weather of September 1865 could never have produced such a disease.

Could, however, such meteorological elements, acting in concert with bad local conditions, produce cholera? The evidence against this seems to me overwhelming. There were in all 60 cases of cholera, and in no case, except in the instance of Standley's house at Bitterne, did these cases occur in connection with the worst sanitary conditions of the district. Even at Bitterne there were other places as badly off or



almost so in sanitary matters as Standley's house, and yet cholera did not appear. Could indeed cholera be caused simply by bad hygienic conditions, by foul privies overflowing the ground under and into houses, by foul water impregnated by sewage, by dirt beyond conception about and in the houses, by excessive foulness of air in the houses themselves, then the villages about Southampton would have been scourged with cholera. In my course of inspection of these villages I was satisfied that the labourers in England live as their rude forefathers did, in utter ignorance and contempt of all sanitary laws, and even of the common rules of decency and cleanliness. No one would credit, but those who know the fact, under what condition the labourers live, not only in Hampshire but in every other county in England. This affects their health in various ways, and aids in the spread and severity of cholera, but does not produce cholera, otherwise England would never be free from it. Now, if the heat and drought of September 1865 coincided with local insanitary conditions to cause cholera, the result would have been a prevalence of cholera in some proportion to the amount of the presumed causes; but no such relationship can be detected or did exist.

I do not intend to deny that local insanitary conditions influence the spread and fatality of cholera when it has been introduced; this is a different point, and I may safely say that no one has insisted publicly more strongly than I have on this point. What I assert here is, that it is most unlikely it should have originated in Southampton and its neighbourhood by a combined action of meteorological conditions and local insanitary circumstances.

With respect especially of the production or propagation of cholera by means of impure water, it has already been stated that in the majority of cases this was not possible.

D.—*Was the Cholera produced by some peculiar unrecognized Epidemic condition?*

The term "epidemic" has been employed in several senses. In the most usual sense of the word it merely expresses the fact that a great number of people are attacked with the same disease at the same time; and does not at all include a recognition of, or point to, the cause of such disease. It is in fact a short translation of what must otherwise be expressed in a long phrase.

But the term "epidemic" has been used in another sense; it has been made to include the cause of the disease, and at present is even sometimes employed as an expression of the cause.

The term "epidemic constitution" was used by Sydenham to express the unknown atmospheric or physical conditions which caused different diseases to prevail in various degrees at different times, or which imposed different characters on the same disease at successive times. By his use of this term, as well as by his necessary ignorance of the diagnosis of fevers, and the consequent want of recognition of their special causes, and the reasons for their variable prevalence at different times, it must, I think, be admitted that Sydenham has often led succeeding writers to rest content with an hypothesis, and to suppose that everything was to be explained by an assumed condition which in reality had never been proved to exist.

The term "epidemic" is used also by some writers, and is at present often understood by the general public, to express a condition antagonistic to contagion. Such a disease, we hear it said, is contagious; such other is epidemic; as if the terms were mutually exclusive, which they are not.

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I do not propose to enter into the question of the conditions which make cholera epidemic, *i.e.*, which make it spread largely among a population. That is another matter. But the question I propose is this: some sufficient cause must be found why 35 persons in Southampton and its environs should have died of the same uncommon disease. If this is not attributable to the introduction of the cause by vessels with that disease on board, and cannot be owing to any local circumstances, or to common meteorological conditions, is it to be attributed to some other influence acting generally on the entire population.

This is in fact merely saying, that none of the assigned causes being sufficient or tenable, we arrive at another cause by the principle of exclusion. When we say in this sense that the cause is epidemic, we really have gained nothing, as far as real knowledge is concerned; it is a mere translation of our thought, and only expresses the sum of the unknown causes or presumed epidemic influence.

How are we to test such a presumed influence? No instruments show us any change in the constituents of the atmosphere, or in its meteorology, for the slight excess of heat and absence of rain in September are conditions of an ordinary kind. Chemical and physical means of research are now very delicate and refined, but still have entirely failed to show any condition of the atmosphere, or of the magnetic currents of the earth and air, which can be supposed to be so unnatural as to produce disease. If such conditions exist, they are beyond our means of research; they cannot be denied, but neither ought they to be admitted without some grounds.

On what grounds should the existence of such unknown epidemic causes be admitted in the case of the outbreak at Southampton?

The answers may be:—

1. Because an unusual disease prevailed there which no ordinary local conditions could produce, and for which there is no other cause than an epidemic influence.

This reason would only be valid if we had positively and certainly excluded all other causes; but this is the very point at issue.

2. Because the simultaneous appearance of the disease in several places, and the failure of the evidence of importation into each place, show that some cause acting generally over Southampton must have been in force.

It is certainly the fact that in Southampton, Weston Common, and Bitterne the outbreaks were almost simultaneous in point of time, but then other outbreaks (St. Denys, Freemantle,) were much later. If there was some general atmospheric condition, it seems singular it should have acted only on one side of Southampton, and not on all sides. The localization of cholera, which is so commonly observed, has been in fact always a strong argument against such a general epidemic influence. To account for its localization it has been assumed that the general cause requires special co-operating local conditions to enable it to act, such as foul air from decomposing soils or from insanitary dwellings. But, as already said, such localizing conditions existed in far greater amount in many localities in Southampton and its neighbourhood in which no cholera occurred.

As far as the distribution of the disease itself is concerned, if it offers some grounds for believing in a general influence it also gives as strong arguments against it.

Did the general health of the community show any sign (apart from cholera) of an epidemic agency?

I have made careful inquiries from a great number of medical men in Southampton respecting the occurrence of diarrhœa.

All but one agree that during July, August, and September there was no excess of diarrhœa; in fact, several gentlemen state that there was less than usual. One gentleman, however, Dr. Scott, saw some cases of choleraic diarrhœa to which he was not accustomed in August and September. In October and November, in all the better parts of Southampton, there was also a great freedom from diarrhœa. In the low parts of the town, however, there was an excess of diarrhœa, according to Drs. Bencraft, Cheesman, and Griffin, the three district medical officers.

Dr. Bencraft has given the following weekly return to illustrate the point.

Dr. Bencraft's list of diarrhœa cases :—

Week ending		Fresh cases of diarrhœa.	Week ending		Fresh cases of diarrhœa.
Sept. 7	-	14	Oct. 19	-	19
„ 14	-	16	„ 26	-	20
„ 21	-	14	Nov. 2	-	14
„ 28	-	35	„ 9	-	7
Oct. 5	-	41	„ 16	-	5
„ 12	-	45			

At Bitterne also Dr. Orsborn noticed a decided increase of diarrhœa at the period when the few cases of cholera occurred there.

I endeavoured to collect returns of fresh cases of diarrhœa from the practitioners in Southampton, but I could not get them filled up.

Perhaps the record of the deaths from diarrhœa is the safest evidence :—

In September 1861-64 the average number of deaths from diarrhœa in the district of Southampton, was	-	-	-	12.75
In September 1865 the deaths were	-	-	-	13
In October 1861-64 the average number of deaths was	-	-	-	2
In October 1865 it was	-	-	-	7

The October number shows a slight increase, but it is not material; in October 1864 the number was 5, or almost as many as in 1865.

Considering then, that in the larger part of the town there was no excess of cases of diarrhœa; that there was no increase in the deaths from diarrhœa in September, and only an unimportant increase in October, and that during a period of public alarm there are always persons who apply for advice who in ordinary times would not think it necessary to do so, I cannot believe that there is any evidence of a general diarrhœa-producing cause hanging over Southampton.

Can any argument be drawn from the decline of the disease? Did it disappear with any great meteorological alteration or evident physical change?

The weather in October was dry till the 8th; a little rain fell then; on the 19th there was a heavy fall.

Now the fresh cases of cholera occurred in the following order in the district of Southampton :—

	Fresh cases.		Fresh cases.		Fresh cases.
Sept. 22	- 1	Oct. 3	- 2	Oct. 10	- 2
„ 28	- 1	„ 4	- 1	„ 11	- 1
„ 29	- 1	„ 5	- 2	„ 12	- 3
„ 30	- 2	„ 6	- 4	„ 14	- 2
Oct. 1	- 1	„ 7	- 3	„ 21	- 1
„ 2	- 1	„ 8	- 2	„ 22	- 1



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There is certainly here no evidence of abrupt cessation on account of the fall of rain on the 19th; on the contrary, the disease was worst about the 6th and 7th, and manifestly declined after the 14th.

On the 19th, the mean temperature lessened, but before this had been tolerably stable all through October, and had not been excessive. There was plenty of ozone all through the month, and no particular alteration in its quantity at any time.

In fact the Meteorological Tables show no condition which indicated any unusual alteration of the air in any way, at the period of decline of the disease.

The causes of the cessation of the disease are, moreover, tolerably clear; they consist in the energetic measures taken in Southampton, and in the local circumstances which were not favourable to the spread of cholera, or in other causes already noted.

Finally, let us consider what is implied in the hypothesis of a general epidemic condition. If it means anything it means that there is some generally diffused though unrecognized abnormal condition, chemical or physical, of the air. Then how can we account for the fact that the places all round Southampton within a few miles, Portsmouth (a seaport like Southampton), Winchester, Salisbury, the Isle of Wight, &c., and all covered with the same air, entirely escaped? In the midst of a pure atmosphere, are we to believe that some aerial island of morbid matter floated in and spent itself on Southampton? That is incredible, and yet such is the conclusion we must come to on such an hypothesis.

In point of air, electricity, ozone, meteorological conditions, &c., all those places must have been equal; they must have participated in the same epidemic wave, if it existed; they differed in one thing only, viz., that in one place steamers from cholera districts, and having on board cholera patients, arrived, while in the others there was no such occurrence.

But what now is the conclusion of this inquiry? If I have exhausted all the reasonable or possible modes of origin, and I cannot see there is more to be considered, the result is this:—the spontaneous development from unusual meteorological, with or without bad local sanitary conditions, must be rejected; the origin by an unknown epidemic influence, alone or coinciding with local conditions, presents formidable difficulties, even if we cannot quite reject it. The origin by importation is deficient in precision of evidence.

Still, both from its own evidence and from the impossibility of indicating another satisfactory mode of origin, the importation seems to me by far the most likely cause. There is at any rate a coincidence, and one which could scarcely be accidental. In only one part in all England did vessels arrive having had cholera deaths on board shortly before, and in reality having cholera on board when they entered the port. Then in that port there occurred shortly afterwards other cases of cholera, and if these were scattered, so also must have been the seeds of the disease, if they were carried by the persons suffering from cholera or slight cholera, landing from the vessels, and dispersing to their homes in and round Southampton, or if the germs of the disease in the atmosphere drifted from the ship, and here and there found the necessary conditions for existence and propagation.

At any rate this is really the only tangible point, as far as I can see, and it has the additional chance of being true, that it is in accordance with the fact that outbreaks of cholera have so frequently happened in towns after the arrival of persons from affected places. Those who

know the history of cholera are aware how many instances have proved the truth of the rule.

The outbreak in Southampton resembled also many other outbreaks in its main features. Even admitting importation, it has often proved most difficult to trace the connection of the early cases, and often also the cases have occurred some time after the introduction.

This difficulty is certainly much greater in cholera than in the cases of other specific and contagious diseases. Admitting that there is occasional difficulty even in small-pox and still more in scarlet fever, and still more probably in typhoid fever, yet the ordinary rules of contagion are observed with much greater ease than in the case of cholera. The susceptible persons nearest to those affected or having intercourse with them, or being in some way most exposed to the putrefying portions of the body coming from the sick, suffer first; then the disease spreads to others, but still can be traced until its steps cross each other too often to remain distinct.

But in cholera it is only in a few cases that this can be traced, and this difficulty in fact has been felt by almost all the observers who have inquired into the origin of cholera both in India and Europe. Still, though as in London in 1848, and in Southampton in 1865, it seems impossible to indicate the exact entrance, or the connection of the early cases with some prior case, the apparently certain knowledge we now have that the discharges will propagate the disease, and that these discharges will retain that power for a considerable period, may explain some of the apparently capricious and unaccountable outbreaks of cholera.

It may be, however, that greater care, and an earlier and more stringent inquiry into the first cases, would clear this up, and the obscurities may have their origin in the inquirer, rather than in the problem under examination, though I cannot but believe there is something in the spread of cholera which no explanation hitherto suggested has yet touched.

### § III.

#### PREVENTIVE MEASURES.

These have been already sufficiently stated. Three points were aimed at :—

I. The removal of every insanitary condition which could affect the purity of air or water. If on analysis the water was bad, the wells were closed and water was obtained elsewhere. Had the cholera gone on in Bitterne, steps would have been taken to select a pure source, and to supply the whole village from it. All excreta were removed from round dwellings; disinfectants were freely used; the freest ventilation was enjoined; lime-washing was enforced.

II. The destruction of the virus in the discharges by the addition of disinfectants to the stools and vomited matters, and soaking of the soiled linen in the same way. The disinfectants selected for general use were chloride of lime, chloride of zinc, and McDougall's powder.

III. The arrest of premonitory diarrhœa by house-to-house visitation and inquiry.

Had the cholera gone on in Southampton it would have been recommended that some of the inhabitants should have been moved out of the infected houses, or even districts in the worst quarters of the town.

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## § IV.

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## CURATIVE MEASURES.

The short duration of the outbreak, and the small number of cases, render it impossible to give any opinion on the use of the various plans employed; the mortality, as already said, was considerable.

Much interest was excited by the employment of ice-bags to the spine, by Dr. Chapman, and various opinions were expressed as to the utility of this treatment. I saw several of the cases, and the impression made upon me was that the trial must be greatly extended before any decided opinion can be given. Ten cases were, I believe, treated chiefly or entirely with ice-bags, but in one case it was imperfectly done; 5 died, or 50 per cent.; or, excluding the case in which the trial may not have been fair, 4 died out of 9, or 44·4 per cent. But several of these cases were mild in type, and in two of the cases of recovery which I saw the symptoms were very slight indeed. The bags appeared to lessen the cramps, but not, I think, to diminish either the vomiting or the purging, and to have little, if any, effect on the algid symptoms. I ought to state, however, that two or three medical men, who saw more of the treatment than I did, rank its utility much higher. Certainly it ought to receive a fair trial, but I own I feel doubtful of its utility.

No. 15.  
*Extracts from  
Reports relating  
to Outbreaks of  
Disease, &c.*

Cholera at  
Theydon Bois,  
Epping, by  
Mr. Radcliffe.

No. 15.—EXTRACT from MR. RADCLIFFE'S REPORT on the OUTBREAK of CHOLERA at THEYDON BOIS, EPPING.

When Mr. McNab had first visited Mrs. Groombridge, he had inquired respecting the state of the water used for domestic purposes. This was obtained by means of a pump from a well beneath the floor of the scullery. Water was fresh drawn for Mr. McNab's inspection. It was clear and bright, and neither in smell nor taste (the latter tested by letting some drops fall from a finger upon the tongue) seemed objectionable. When after Mr. McNab's death Mr. Clegg took charge of the sick, he, finding the mischief still increasing among the family without any obvious cause, and having a well-founded doubt of the purity of the water supply of the entire neighbourhood, at once stopped the use of the water from the house-pump. The wisdom of this course will be apparent in the sequel. It probably prevented the entire family being swept off.

When I first visited the house (11 October) the pump had been disused for seven days. On setting the pump again in action, the water poured out proved to be very turbid and abominably fetid. The odour of sulphuretted hydrogen was conspicuous. It was clear that the water was laden with decomposing organic matter. The source of pollution of the well was sought for on the 13th, and on this day I collected specimens of the water, and forwarded them for analysis to Professor Miller of King's College. I append his report. He found traces of sulphuretted hydrogen, and a very large amount of ammonia. There was also a quantity of organic matter in suspension. Free oxygen and nitrates were absent. "There is obviously," he remarks, "some leakage from the cesspool into the well."

The termination of the soil-pipe of the first-floor watercloset and the commencement of a sink-drain each lay within a yard of the mouth



of the well. On opening the well indications of percolation through the brickwork nearest the sink, and at a little distance below the level of the mouth, were at once perceived. On pouring water down the sink-drain a steady filtration at the suspected point soon commenced, showing that a communication existed between the sink-drain and the well. On removing the brickwork where the filtration occurred the soil at 2 feet 6 inches from the surface, and in the angle near the pump, was found to be saturated with drainage matter. But a careful examination failed to discover any leakage either from the sink-drain or the soil-pipe inside the walls. On prosecuting the search outside, however, it was discovered that the drain in which the soil-pipe terminated and the continuation of the sink-drain (the one drain having no communication with the other) were defective, and that a leakage took place from both. The escaped matters penetrated downwards along the outer wall of the house, passed beneath the foundation, saturated the earth in the angle between the pump and the well, and so reached the latter. Water having been poured down the watercloset, in ten minutes a portion had passed along this track, and was dripping into the well. The soil-pipe from the watercloset was constructed of ordinary glazed stoneware, until it passed beyond the external wall of the house, when it was continued by common 6-inch unglazed butt pipes without sockets, and simply placed end to end. The leakage took place at the first joint between the glazed and unglazed pipes, and the porous material of the latter permitted free percolation of liquids.

It would appear to have been thought in the building of the house that the interposition of the thick and solid foundation wall between the drains and the wall would be a sufficient safeguard against contamination of the latter by escaped sewage. The error is one liable to occur; but instances of the pollution of house-wells by soakage from without, beneath foundation walls, are, I believe, not common. Hence I have not hesitated to describe the source of pollution in the present case at somewhat greater length than might else have been necessary.

The contamination of the well water was not of recent date. Early in June, Mr. Groombridge had consulted Mr. Forshall, of 16, Beauvoir Terrace, Kingsland Road, N.E. He was then suffering from obstinate indigestion, irregularity of bowels, particularly a desire to go to stool immediately after taking food, inaptitude for active exertion, and great depression of spirits (although his business affairs were prosperous). His health had been more or less disordered for several months. As little relief was obtained from the medicines prescribed, and Mr. Forshall was informed that Mrs. Groombridge and Mrs. Pascell were suffering in a less degree from similar symptoms, he suspected that the water used by the family might be impure. In answer to his questions Mr. Groombridge stated that it was very hard, and gave to tea a disagreeable flavour. Mr. Forshall requested that a specimen should be brought to him. This he received on the 17th June. The water was limpid but it had an unpleasant odour and nauseous taste, and it was submitted to Mr. Goff of the Kingsland Road, an operative chemist, for analysis. Mr. Goff reported that the specimen contained traces of sulphuretted hydrogen, and much organic matter. Notwithstanding this discovery, the faith of the family in the goodness of the water was not shaken, and they persisted in its use until the outbreak of cholera.

Mr. Forshall prescribed both for Mrs. Groombridge and her mother; and it was upon his recommendation that Mr. and Mrs. Groombridge visited Weymouth.

From Mr. Forshall's statement, it is apparent that Mr. Groombridge's family had been drinking water contaminated by drainage

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No. 15.  
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from early in June, probably for a longer period. The outbreak which is the immediate subject of inquiry may be surmised to have followed upon the further pollution of the water by the alvine evacuations of Mr. and Mrs. Groombridge during the two or three days immediately following their return from Weymouth. At this time the watercloset on the floor of the house was in frequent and unaccustomed use; large quantities of liquid faeces were received in it, and all the ejections both from the stomach and bowels, during the first brunt of Mrs. Groombridge's illness, were cast down it. The largely increased quantity of water passing from the watercloset along the soil-pipe and terminal drain would contribute to a more rapid contamination of the well.

No. 16.  
*On Yellow  
Fever at  
Swansea, by  
Dr. Buchanan.*

Yellow fever  
at Swansea.

No. 16.—REPORT by Dr. GEORGE BUCHANAN on the Outbreak of  
YELLOW FEVER at SWANSEA.

I have the honour to report, that immediately upon the receipt of instructions on September 27th I set off for Swansea, and found that numerous cases of yellow fever had occurred, apparently in connexion with the Hecla, a vessel that had arrived from Cuba on September 9th. I was obliged to return to London on the morning of September 29th; but the inquiry proving extensive and important, I returned to Swansea on the night of September 30th, and continued the investigation till October 5th. From that date I have been enabled, by correspondence with medical men and others at Swansea, to bring the facts down to the date of the present Report (October 23d, 1865), when the fever appears to be completely at an end. To my account of the outbreak of yellow fever in Swansea I have thought right to prefix certain particulars as to the general sanitary circumstances of the town.

## § I.

Sanitary cir-  
cumstances of  
the town.

Topography.

The town and port of Swansea in South Wales is in latitude  $51^{\circ} 37'$  north, and in  $3^{\circ} 55'$  west longitude. Some of the higher parts of the town distant from the port are on the coal measures, which form the main part of the county of Glamorganshire, and line the bay; but the greater part of the town is situated on a porous alluvium at the mouth of the river Tawe which runs from north to south into Swansea Bay. Just before entering the harbour the river divides into two parts, including a small long island between them, of which mention will frequently be made. The river separates the town on the west from the hamlet of St. Thomas, a rapidly growing suburb, on the east. The west branch of the river between the island and the town of Swansea is formed into the North Dock by a lock at each end. The alluvial island and some inhabited portions of both river banks have only a few feet of elevation above high-water mark.

Size.

The municipal borough of Swansea includes a population nearly half as large again as that of the town proper. The borough population was, in 1841, 22,982; in 1851, 31,461; and in 1861, 42,581.

Trade.

Swansea is the principal seat of the copper trade of Great Britain, importing copper ore from various parts of the United Kingdom, and very largely from Cuba and Chili. There are extensive smelting works to the north of the town and they employ large numbers of men. Ironworks, potteries, patent fuel works, and shipbuilding also give abundant occupation to the rapidly growing population. And the

exporting of coal and other minerals and of manufactured produce is another important part of the trade of the port. There is no present lack of employment nor any exceptional destitution in the town.

The local government of Swansea is in the hands of a mayor and corporation, who are the local board of health. Certain functions relating to the shipping of the port are vested in the harbour trustees, the customs officers, and the coast guard.

The town is not very closely built on, except on the west side of the North Dock, where there are a good many small ill-ventilated courts. The houses of the labouring class are far from being of the worst sort, and they are not as over-crowded as is common in large seaport towns. Their worst sanitary defects consist in their sometimes low and confined situation, and in the absence of sufficient outside conveniences. There are 17 registered common lodging-houses in Swansea, and about an equal number into which tramps are occasionally received illegally.\* The lower part of the town is all supplied with public sewers, but the houses of this part do not all use them, many of them still having cesspools. The sewerage of the upper part of the town has not yet been carried out. The main sewer of the town enters the harbour between the entrances to the North and South Docks. The outfall for the sewerage of the hamlet of St. Thomas, and also the outfall for the small sewer that drains the island, are into the east branch of the river just above its entrance into the harbour. All the outfalls are below high-water but above low-water mark. The sewer from the island receives in the main only surface water and slops. All the privies but one on the island discharge into cesspools. The gullies are all trapped, and charcoal boxes are fitted to the ventilating holes.

No sewage has entered the North Dock for the last four years. There is a constant movement of water of small extent in the North Dock, flowing out as vessels are "locked" in passing between the harbour and dock, and entering by the Swansea Canal at the head of the docks. When the canal supply fails to keep the water to a sufficient level in the North Dock, there is an arrangement for pumping sea water into it from the South half-tide basin.

The water supply of Swansea is from reservoirs some distance off the town, which are fed by streams and springs. The water is very good in quality, free from organic contamination, and supplied on the continuous system at the rate of some 30 gallons per head per day, but from this estimate a considerable deduction must be made for the water used by the railways and manufactories. Measures are at present being taken for an increased supply of very pure water.

Many thoroughfares† and private courts in Swansea are extremely defective in their paving, and as a consequence are either muddy or dusty, as the weather goes, but always dirty.

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Government.  
House accom-  
modation.

Sewerage and  
house drainage.

North Dock.

Water supply.

Paving.

\* The sanitary inspector finds difficulty in getting a conviction from the magistrates for taking lodgers into an unregistered house, inasmuch as the magistrates require evidence that the lodgers are different people, from one night to the other, before they consent to regard the house as a common lodging-house. And this evidence they insist on, even though it is admitted that members of several families occupy a single room.

† The bad paving is a very widely spread evil throughout the town, and nothing can be more desirable for health than that it should be made good. But most of the places where the paving is bad are technically private streets. The surveyor has recommended that many such streets should be adopted by the board of health. But the town clerk points out that they ought to be paved, channelled, and properly laid out by their owners before the board adopts them. The town clerk also is said to hold that the owner of a private court cannot be compelled to pave it, unless a nuisance is proved.



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Swansea, by  
Dr. Buchanan.

Copper smoke.

Ordinary  
death-rate.

Prevalence of  
chief diseases.

It is impossible not to mention the "copper smoke" of Swansea among the conditions that would be expected to affect health. But any effect that it may have in this way is stated to be small, and to be obscured by other influences.

The ordinary rate of mortality in the registration district of Swansea and Gower was 20·23 per 1,000 in the 10 years 1851-60. But in the town of Swansea proper the death-rate is more considerable than this, reaching to 23 or 24 per 1,000.

The prevalence of the principal causes of death for the registration district is shown in the following table from the Parliamentary Return No. 12, Session 1863, where the corresponding numbers for England and Wales are added for the sake of comparison, but as regards the town proper similar statistical information for recent years cannot be given.

Deaths per 100,000 of each class referred to.

Class.	Cause of Death.	Swansea and Gower.	England and Wales.
Both sexes : All ages	All causes - - -	2,023	2,217
	Fevers - - -	94	91
	Diarrhoea, dysentery, and cholera - - -	52	108
	Scarlatina - - -	82	88
	Diphtheria - - -	7	11
Under 1 year	All causes - - -	13,506	17,731
At less than 5 years of age	All causes - - -	5,809	6,760
	Diarrhoea, dysentery, and cholera - - -	223	526
	Lung diseases (without phthisis) - - -	935	1,040
	Brain diseases (with hydrocephalus) - - -	1,594	1,337
	Teething - - -	99	163
	Small-pox - - -	210	103
	Scarlatina - - -	448	419
	Measles - - -	225	280
	Whooping cough - - -	332	362
	Phthisis - - -	405	370
Ages between 15-55.	Females - - -	423	403
	Males - Other lung diseases - - -	148	119
	Females - " - - -	115	84
	Males - Brain diseases - - -	142	153
35-55	Females - " - - -	93	122

An excess of phthisis and lung disease in the adult, of small-pox and of brain diseases (probably convulsions) in children, with a fever rate as high as the needlessly high rate of England, are the only unfavourable points, among many favourable ones, that are to be gathered from this table. Probably some of these causes are just those which operate more in the town than in the country parts of the district to raise the mortality.

The prevailing type of continued fever of Swansea is typhoid with rose spots. True typhus is of very rare occurrence. Fever is stated not to be especially prevalent in the low-lying parts about the docks. There has been no exceptional amount of fever in the present year, perhaps even less than usual, and none of any consequence in the

Ordinary con-  
tinued fever,

vicinity of the docks. There has been no relapsing fever for a great many years. One case that occurred a year ago, described to me by a physician in Swansea as a possible example of this disease, was out of all question a case of typhoid.

In 1863-4 there was a serious epidemic of scarlatina in Swansea, and diphtheria was also very prevalent. Last winter measles was epidemic, but not very fatal. Diphtheria is stated to be now present.

As to intermittents, most of the medical men agree that they are of very rare occurrence, but Dr. Paddon has found brow ache common in his practice, which does not lie, however, in the lowest parts of the town.

None of the practitioners of Swansea have ever seen yellow fever in the town before the present outbreak. Some of them remember cases convalescing from yellow fever having been brought into the port, but they never knew the disease to extend to a resident in the town. Dr. Padley has not unfrequently seen persons suffering from the remittent fever of the West Indies, usually convalescent on their arrival, but sometimes having the fever with remissions afterwards. They usually recover, and have not been known to communicate the disease.

It is not, however, so certain that yellow fever has never before appeared at Swansea, among persons employed on infected Cuban ships on their arrival. Mr. W. Rosser, keeper of the light and meteorological registrar, has furnished me with the following information, dated 20th October 1865, respecting instances of yellow fever suspected to have occurred at the port previous to the outbreak of the present year.\*

The first positive case of yellow fever which I can certify is as follows: Benjamin Davies, pilot of this port, piloted a brig called Alderman Pirie, which arrived here from Cuba with a cargo of copper ore (some of the crew having died on the passage home of yellow fever). He boarded her on the 26th July 1843 in the Channel, remained on board that day at the Mumbles Roads, entered the harbour on the following day, 27th, repaired to his home as soon as the ship was moored, complained of violent pain in his head, and died the following day, 28th, exhibiting all the symptoms of yellow fever. This information I obtained yesterday from the widow of the deceased.

The second case. The Henrietta barque arrived into this port from Cuba with copper ore in the month of August 1851. William Gammon, a respectable sailor, was employed to go on board the Henrietta as shipkeeper. He was (while on board) taken ill, went home on the 25th of the above month, and the following day, 26th, was a corpse, of unmistakeable yellow fever. Upon his first been taken ill, his brother, Benjamin Gammon (also a sailor), not knowing the complaint in its first stages, went on board the same vessel to retain the situation for his relative. He was almost immediately taken ill in the same way as his brother William, but having obtained the prompt services of three of the medical gentlemen, as well as that of an old captain, he providentially recovered, from whom, and also the widow of the deceased, I obtained the foregoing particulars on the past day.

Third case. In July 1864, Samuel Dawkin, a shipkeeper, went on board the barque Mangosteen which came from Cuba, to act in that capacity (fever having been on board previous to her arrival). He was suddenly taken ill, and on the third day a corpse, and in the opinion of his brother, David

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and other  
fevers.  
Intermittents.

Previous  
yellow fever  
in Swansea.

\* An opinion of Dr. Paddon, although it is not extensively shared by other practitioners in Swansea, deserves to be recorded here. It is that after a vessel has arrived from Cuba with sick persons who have afterward died on shore (though he cannot be sure that the imported disease was yellow fever) a special malignity has been observable in the common gastric fever of the town, the gastric symptoms proper being more intense, and delirium coming on earlier than in ordinary times, with a greater tendency to nervous collapse. This has occurred to Dr. Paddon to notice on three or four occasions, the mortality of fever at such times being raised to 30 per cent. of the attacks in the adult.

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Fever at**Swansea, by**Dr. Buchanan.*Previous  
yellow fever  
in crews of  
vessels coming  
to Swansea.

Dawkin, to whom I am indebted for the facts, it was a confirmed case of yellow fever. The cases I have thus furnished you with were all known to myself at the time of their occurrence, as I was well acquainted almost daily with the deceased men and their habits. I believe you will consider them to be fully authenticated.

Respecting the occurrence of yellow fever, of late years, among the crews of Cuban ships arriving at Swansea, the following facts were obtained from a book kept to show the "receipt of wages and effects of deceased seamen." Of vessels arriving in 1862 the San Jose lost two of her crew from yellow fever at Cuba; the Florence one; the Cornwall lost ten of her crew from the same disease, five at Cuba and five at sea; the Ellen lost eight of her crew from it, seven at Havannah, and one on her passage home; the Hampshire lost one at Cuba of the same fever; the Mangosteen lost one man from "fever" at Cuba; the Countess of Bective lost five of her men from yellow fever, and one from brain fever at Cuba; and the Dorsetshire and Cobrero each lost four from yellow fever at Cuba. Of ships arriving in 1863, the Florence and Stains Castle had each lost one man at Cuba of yellow fever; the Cornwall had lost three, one at Cuba, and two on her way home, from the same disease; the San Jose had lost one at Cuba. Of ships arriving in 1864, the Dorsetshire had lost two men from yellow fever at Cuba; the Mangosteen had lost one at sea from "fever;" the Pedro Ferrer one at Cuba from yellow fever.

Of 24 Cuban vessels that have discharged their crews at Swansea in the present year three only have lost part of their crew from yellow fever; the Augusta Schneider one; the Victoria two on the voyage; and now the Hecla.

As to cases of yellow fever that recovered, similar information was not so easily accessible.

Meteorology.

I am indebted to Mr. W. Rosser for the meteorological tables placed in the Supplement, which show how remarkably the present season differed from its predecessors at Swansea, especially its very high temperature and want of rain. Reference will hereafter be made to these tables, to show how the atmospheric conditions of Swansea altered in the second week of the present October.

## § II.

Circumstances  
of arrival of  
Hecla.

On Friday, September 8, the Hecla barque, a wooden sailing vessel, William Clouston master, returning from Cuba to Swansea with copper ore, was boarded at 5 p.m. by George Morgan, a Swansea pilot, 15 miles to N.E. of Lundy Island [and therefore about 25 miles off Swansea]. He found her in charge of a Bristol Channel pilot, who gave up charge, and returned to his own boat. The master informed Morgan that he had a man on board sick of dropsy, that he had lost three of his crew on the voyage home, was in consequence short-handed, and desired Morgan to send his boat ashore for four or five men to assist him in coming in. This he accordingly did, and five men came off. The vessel reached the Mumbles roadstead, came to anchor there about 9 p.m., and showed a light through the night. At daylight on Saturday September 9 the ensign was hoisted, and the ship's number shown. The steam tug came up about 6 a.m., and towed the Hecla in, in the ordinary course. Not a word was said to the pilot about yellow fever, and he had no idea that the men died of that disease. The last vessel that had arrived from Cuba, less than a fortnight before, had had no sickness on board, and the pilot had no reason, particularly as the



Hecla had a clean bill of health, to believe that the sickness on board was of an infectious character.\*

The Hecla entered Swansea Harbour at 9 a.m. on September 9, showing no quarantine flag, and giving no indication that sickness was on board.† She was placed in the North Dock, alongside the Cobre Wharf, in the usual discharging berth.‡ A good many people went on board her as she entered the dock.§ Within an hour of the ship's arrival, two passengers were landed with their luggage, and the crew had left the ship, and had distributed themselves over the town. Three men were landed sick; two of whom were recovering from "fever;" one the captain reported ill of dropsy. Within three hours of the vessels arrival in port the hatches were removed, a stage rigged, and gangs of men commenced discharging the cargo.|| About noon the sanitary inspector came to the mayor, told him of the arrival of the Hecla, and stated to him that deaths were reported to have occurred on the vessel in her homeward passage, and that one seaman had been landed from the ship seriously ill. The mayor, J. Clarke Richardson, Esq., went at once to the collector of customs and to the master of the Hecla, and learnt that the rumour about sickness on board was true, that some of the deaths had been from yellow fever, and that the sick seaman was suspected to be suffering under the same disease. Thereupon the mayor requested Dr. Paddon to accompany him, and they went together to Welcome Court, where the man, James Saunders, who had been removed from the Hecla, lay sick.¶ He had before been visited by two medical men (Messrs. Harrington\*\* and Thomas), who had certified the case to be one of yellow fever. This was the man who was stated by the captain to be ill of dropsy. Dr. Paddon found him lying in bed, in a wretched room of a small dirty house, dying of exhaustion from fever, without any sign of dropsy; his body tinged yellow.|| He was so near death that no detailed examination could be made. The mayor and Dr. Paddon had scarcely left the house when the people ran after them, to say that Saunders was dead.¶¶ Dr. Paddon thereupon certified that he died of "fever, probably yellow fever."

At this time, soon after noon on September 9, a good deal of public anxiety existed about the Hecla, and about the possibility of disease spreading from the house in Welcome Court or from the crew. Under Dr. Paddon's advice, the mayor caused the following precautions to be taken:—The body of Saunders was put into a tarred sheet, and buried within four hours of his death; the house where he died was immediately emptied, and disinfected with limewash and chloride of lime; and for further safety all the houses in the court were similarly treated. The bedding and clothing of the dead man were destroyed, and the house was again cleansed and disinfected before it was allowed to be tenanted, a week after. The mayor also set the police to find out the passengers and crew of the Hecla, and sent the sanitary inspector, in company with Mr. Evans,†† to have their clothes and rooms and persons fumigated with chlorine.‡‡

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September 9.

First precautions.

\* Evidence of pilot to Mr. Cullum, officer of customs appointed to inquire as to breach of quarantine by the master and others of the Hecla.

† Evidence of Custom House officer to Mr. Cullum.

‡ Dr. Paddon to the Board of Trade.

§ Statement to self by Norman; Case I.

|| Dr. Paddon to the Board of Trade.

¶ Statement of mayor to self.

\*\* Mr. Harrington was acquainted with yellow fever, having seen it abroad.

†† Mr. Evans is lecturer on chemistry at the Normal College at Swansea, and is connected with the corporation as gas examiner.

‡‡ Statements of mayor and Dr. Paddon.

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But the mayor and Dr. Paddon were further desirous of dealing with the *Hecla* herself, on the supposition that she might be a source of infection. The mayor therefore convened a meeting of magistrates, to consider whether there was any power to remove the vessel from the dock, and if so, whether the sailors who had left the ship could be compelled, under their articles, to take her out.\* The customs authorities and the board of health were also applied to. All agreed that the vessel ought never to have come into the port, but having entered and partly discharged her cargo all the authorities found themselves powerless to insist on her removal.† The agents for the owners of the ship and cargo were communicated with, but they at first refused to allow either ship or cargo to be meddled with, arguing that other ships had come into Swansea having had yellow fever on board in their homeward passage, that they had never been interfered with, and that no ill results from them had occurred to inhabitants of the town.‡ After consultation with other authorities of the town then, the mayor did all that he could do, and on the afternoon of the same day, September 9, set the police to turn people off the vessel, and keep everybody from going on board her. The unloading was stopped, and the hatches shut down, but not before some 30 tons of ore had been taken out and placed in the Cobre yard.§ Measures of purifying the ship were now had recourse to; these continued until Tuesday the 12th September, and consisted in washing the decks and forecastle with solution of chloride of lime, and in the copious evolution of chlorine in the forecastle, steerage, hold, and places of storage. Norman, one of the persons whose cases are recorded hereafter, noticed when he was on the ship on the 9th, before any chemicals were used, that a very bad smell came up from the forecastle, where the sick people had been; and on Monday the 11th Dr. Paddon observed even the scupper holes filled with what appeared to be excrement, and had them especially cleaned out. The fumigation of the ship was finished on the 12th; the police were then removed, and communication with the vessel permitted. On the morning of the 13th she began to discharge her cargo, and finished unloading on the 20th or 21st of September, lying all the time alongside the Cobre company's yard into which her ore was taken. The agent for the Cobre company had this ore sprinkled with Burnett's fluid.

History of  
*Hecla's voyage.*

On the afternoon of the day when the *Hecla* arrived, as soon as action had been taken, inquiry into the history of the vessel and into the circumstances of her arrival was more accurately made. At about 3 p.m. the collector of customs instructed the examining officer to put to the master the usual quarantine questions. It must be premised that the master had been guilty of an infraction of the quarantine laws, and that his answers were defensive in character, and were not always consistent with themselves. From them it appears that the *Hecla* left Swansea on May 1, and touched at no place until she arrived at Cuba; that she left Cuba on the 26th of July with a clean

\* Statement of mayor to self.

† Dr. Paddon to the Board of Trade.

‡ Dr. Paddon to the Board of Trade and to myself. The agent of the Cobre Mining Company, in a letter explanatory of what he said on this occasion, states, respecting the arrival of vessels from St. Jago de Cuba with yellow fever on board, that his experience in direct communication with such vessels extends over a period of 18 years, and during such time he has never known any ill results arising from the landing of these crews in this port. He further remarks, that a regular trade between Swansea and St. Jago de Cuba has been carried on for 30 years, without any alarm or injury to the inhabitants of this town and port.

§ Statements of mayor, Dr. Paddon, and Norman (Case I.)

bill of health, again touching at no place in the homeward voyage. The master's answers further state that he was not aware of any infectious disease prevailing in any degree at the place from which he sailed, but that he heard reports of sickness at Cuba. He states that two mariners died at Cuba. [In a subsequent examination by Mr. Cullum, of the customs, the master stated that before sailing from Cuba several cases of sickness occurred, and on July 21 George Wilson died in the hospital on shore, and Hansel Pedersen was left in the hospital sick.] The master's answers continue that he has four officers, ten mariners, and two passengers on board [they had, however, dispersed at the time the examination was taken], and that in the course of his homeward voyage he lost three of those on board, viz., on August 11, one man 16 days sick; on August 24, a second, three days sick; and on September 1, a third, 42 days sick. The bedding and pillows of these men were thrown overboard. [The master's statement to Mr. Cullum, and the log of the vessel, show that the first man was John Thompson, who joined on July 21, five days before the vessel left Cuba, where he was one day out of hospital. The second man was William Douglas, the third David Richards.] Saunders, who died on the day of arrival at Swansea, had been 14 days sick. Of the six deaths, two had been from yellow fever, two from intermittent. [In his statement to Mr. Cullum the master says he considered Saunders was suffering from dropsy. In the book of "receipts of wages and effects of deceased seamen" the cause of death of each of the six men is entered as "yellow fever."] Among other answers to the quarantine questions, the master stated that all except the cases now mentioned had been well during both voyages and at Cuba. [In his subsequent statement to Mr. Cullum, however, he says that several cases of sickness occurred before sailing from Cuba, and that during the passage home several of the crew, besides those who died, were sick.]

These answers having been obtained from the master, the collector of customs forwarded them on September 9th to the Commissioners of Customs in London, and stated that "he had put the vessel in "quarantine." On being questioned by myself on October 3, as to what this statement signified, inasmuch as the crew were already dispersed, and the vessel partly unloaded, the collector said that he meant that he had the quarantine questions put, and that the mayor had prevented communication with the ship, and had had her hatches shut; but that the customs authorities had adopted no preventive measures.

Dr. Paddon was desirous, on September 9, that the Board of Trade should be at once acquainted with the circumstances by telegraph, and their instructions asked. Finding this was not done, he wrote on the 11th September, to the President of the Board of Trade, a letter from which the chief points have already been extracted here.

On September 15 the Board of Customs instructed Mr. Cullum, their collector at Newport, to proceed without delay to Swansea, and to institute a full inquiry into all the circumstances connected with the Hecla. The chief points elicited in this inquiry have also been already here stated.

The observations of the Board of Customs upon Mr. Cullum's report are, "that there has been great irregularity and neglect of the usual precautions on the part of all persons on board, and that the master, the Swansea pilot, as well as the Bristol pilot, and the crew who landed from the vessel have in strictness rendered themselves liable to prosecution under the quarantine laws. They would, however, appear to have acted in ignorance and not from any wilful intention of violating the law." This opinion having been com-

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municated to the Privy Council, the Customs authorities were informed that the parties implicated must be warned of their liability to prosecution, but that under the circumstances no prosecution would take place.

Mention has already been made of other ships coming from Cuba which had lost some of their crew from yellow fever. It appeared right, before connecting the Hecla with the deaths that occurred after her arrival, to make quite sure that no other vessel of those recently arrived at Swansea from an American or West Indian port had had any similar sickness even not fatal on board. The Registrar General of Seamen has kindly furnished extracts from the logs of all vessels so arriving in the two preceding months, which are quite free from any mention of fever. So that certainly no other ship can be connected with the outbreak.

After Saunders's interment, and after the precautions before described had been taken, no further alarm appears to have been felt about yellow fever. The Hecla some days after unloading, was transferred from her place by the Cobre Wharf into the Beaufort Dock, a branch of the North Dock, surrounded by high warehouses. But on Sept. 23, the registrar of births and deaths in Swansea, got a medical certificate that a death had occurred from yellow fever, and heard it reported that other cases were about the town. That letter, transmitted by the Registrar General of births and deaths to the Council Office, was the immediate cause of the present inquiry being set on foot.

## § III.

Outbreak  
among inha-  
bitants of  
Swansea.

Since the arrival of the Hecla cases of true yellow fever have occurred among residents in Swansea. The character and sequence of the attacks were only made out by degrees: each is related separately with as much accuracy as possible in the supplement. The following is a tabulated abstract of the facts as they were at last ascertained, arranged as far as may be in the order of their occurrence:

# ABSTRACT OF CASES OF YELLOW FEVER IN SWANSEA. Doubtful Cases in Italics.

	Date of Attack.	Place of Work.	Name.	Residence.	Date of Death.	Date of Convalescence.	Supposed Source of Infection.
1	At sea Sept. 15	Hecla North Dock	James Saunders — Norman	Welcome Court Clifton Row	Sept. 9	Oct. 1	Ship Hecla. Work among shipping in North Dock. Having been on Hecla on September 9.
2	Sept. 17	East quay of North Dock	David Bowen	3, Fynone Street	Sept. 22	—	Patrolling by side of Hecla, and probably on board her.
3	Sept. 18	Ferry-side	Margaret Brown	Ferry-side	Sept. 22	—	Residence on island.
4	Sept. 18	Cobre Yard	Margaret Williams	Cobre Yard	—	Oct. 1	Residence on island.
5	Sept. 23	Cobre Yard	Miss Trestrail	(Lay ill at Gower Place.)	—	Sept. 28	Residence on island.
6	Sept. 18	Richardson's ship yard	John Jesse	9, Greenfield Street	Sept. 23	—	Work on island. Having been on Hecla, September 9.
7	Sept. 22	Richardson's ship yard	Sarah Wilson	Richardson's ship yard	Sept. 25	—	Residence on island. Husband on Hecla, 2 or 3 times.
8	Sept. 25	Richardson's ship yard	Mary Ann Wilson	(Lay ill at Mansell Street.)	—	Oct. 3	Residence on island. Father on Hecla, 2 or 3 times.
9	Sept. 25	Richardson's ship yard	Mrs. Wilson	Richardson's ship yard	—	Oct. 1	Residence on island. Having been on Hecla, 2 or 3 times.
10	Sept. 26	Richardson's ship yard	William Thomas	Richardson's ship yard	—	Oct. 13	Work on island.
11	Oct. 3	Richardson's ship yard	James Hilley	Clifton Hill	Sept. 29	—	Work on island.
12	Sept. 19	Smithy on island	John Colwell	5, Lower Rodney Street	Sept. 24	—	Residence on island.
13	Sept. 20	Bath's Yard	Elizabeth Davies	Bath's Yard	Sept. 25	—	Work on island.
14	Sept. 21	Bath's Yard	Elizabeth Harris	Bath's Yard	Sept. 27	—	Residence on island.
15	Sept. 25	Bath's Yard	— Jones	3, Lower Rodney Street	—	Sept. 29	Work on island (assaying Hecla ore).
16	Oct. 1	Bath's Yard	John Wilkins	Bethesda Terrace	Oct. 10	—	Residence on island. Husband on Hecla, September 9.
17	Sept. 20	8, Cobre Row	Jaane Mahoney	8, Cobre Row	Sept. 27	—	Residence on island. Father on Hecla, September 9.
18	Sept. 22	8, Cobre Row	Hannah Mahoney	8, Cobre Row	—	Oct. 5	Residence on island. Connection with previous cases.
19	Sept. 24	*Richardson's ship yard	William Mahoney	8, Cobre Row	Sept. 27	—	Residence on island. Connection with previous cases.
20	Sept. 30	8, Cobre Row	Jane Mahoney, jun.	8, Cobre Row	—	Oct. 8	Communication with Saunders. House adjacent to Welcome Court, and about 150 yards from Hecla. Hickey and wife were only cases which could not be traced to residence or occupation on the island.
21	Oct. 3	8, Cobre Row	Susan Mahoney	8, Cobre Row	—	Sept. 27	Same as husband; but no direct communication with Saunders.
22	Sept. 20	Pelican Inn, Strand	James Hickey	Pelican Inn, Strand	—	—	Had not been on island or at docks. Visited a case of yellow fever (Hoven) first on 19th September.
23	Sept. 22	Pelican Inn, Strand	Elizabeth J. Hickey	Pelican Inn, Strand	Sept. 20	—	—
24	Sept. 21	About town	Dr. Griffith, M. R.	Dynevor Terrace	—	Sept. 30	—
25	Sept. 23	Eleanor sloop	Charles Hayes	Eleanor sloop	Sept. 25	—	—
26	Sept. 26	Eleanor sloop	John Slocum	Eleanor sloop	Sept. 30	—	—
27	Oct. 2	Eleanor sloop	Daniel Stapleton	(Died on shore at Llanelly.) Eleanor Sloop (Lay ill at Frampton-on-Severn.)	—	End of Oct.	The Eleanor sloop lay close to the Hecla in the North Dock, September 16-18. Then sailed for Llanelly, where the deaths occurred.
28	Sept. 29	Top of Cobre Row	Rachel Williams	Top of Cobre Row	Oct. 1	—	Residence on island. Husband on Hecla. Saw corpse of Mr. Brown.
29	Oct. 4	Richardson's copper yard	Nathaniel Williams	Top of Cobre Row (Lay ill at Powell Street.)	Oct. 5	—	Residence on island. Having been on Hecla once between 10th and 17th September.

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Let it be recalled that in the present summer, and at the time of this outbreak, there had been extremely little fever of any sort in Swansea. What did exist was ordinary typhoid, and there were no cases of this on the island. There was not, and there had not been for many years, any instance of relapsing fever.

The table shows that between September 15, when the first case occurred, to October 13, when the last case became convalescent, there were 22 cases in which the diagnosis of yellow fever could pretty certainly be made, and seven other cases in which the circumstances of exposure or the character of the attack led to a more or less strong suspicion that the illness was of the same nature.

Of the cases diagnosed yellow fever 15 died, besides the man brought by the Hecla, and seven recovered. Of the doubtful cases one died, and six recovered.

Nature of  
 disease.

Of the nature of the disease I am able to assert, with the assent, I believe, of the whole of the medical profession in Swansea, the three following propositions, which I give in the order in which they were successively established:—1. That it has been no ordinary English fever; 2. That it has not been the relapsing fever, which in certain epidemics has been observed to present varieties simulating tropical yellow fever; 3. That it is *bonâ fide* the West Indian yellow fever itself. The records of a case, which differed in no essential respect from most other fatal cases, and which is chosen for quotation here because one day's note contains all essential points, will exhibit something of the evidence on which these propositions are based.

Record of a  
 typical case.

Rachel Williams, aged 35, married, living on the island at the top of Cobre Row. Ailing in no definite way for a week before 27th September, when she was seized with diarrhoea and vomiting, but on 28th was well enough to go to church in the evening. On the morning of 29th had rigor and intense frontal headache, and when seen by Mr. Andrew Davies at 10 $\frac{1}{2}$  a.m. had violent pain in loins and along spine, eyes suffused and face flushed, great general heat of skin; no jaundice; pulse 132. Ordered calomel and James's powder every four hours, with cold to head. Seen again at 10 p.m., when a slight improvement was noted.—September 30th, 10 a.m. Less pain in head and back, pulse 118, temperature much less, no vomiting or epigastric pain; two stools; plenty of natural looking urine.—October 1. Vomited four times in night between three and five a.m.; everything vomited was black; light brown stool last night. Seen by Mr. Davies and myself at two p.m. Face pale, lips bluish; peculiar frown; no wandering or coma. Says "she feels better." Skin cool; sweating, feet cold; temperature in axilla 98.4°; trace of yellowness in conjunctivæ; no œdema of feet; pulse 94, very small and soft; tongue dryish black; frequent efforts to vomit; vomita copious black, a black powder suspended in a somewhat glairy-looking liquid; no tympanitis; epigastrium very tender; two stools to-day; one seen is semi-solid, mixed black and grey, mottled. No urine passed to-day, unless a teaspoonful of pale fluid with the stool be urine. The black vomit was strongly acid, and when microscopically examined was found to consist (A) of blood corpuscles, (a) unchanged, red and white, (b) small and shrunken, (c) disintegrated, (d) massed into large yellow irregular lumps, in which separate shrunken corpuciles were sometimes recognizable, (B) of epithelium, (a) squamous, (b) columnar, (c) spheroidal, (d) free nuclei. The vomit when filtered yields a liquid almost colourless, and having none of the reactions of bile. On the same day, October 1, at 5 p.m., delirium began, and when seen by Mr. Davies at six p.m. she was insensible, with trismus and general rigidity of the muscles. Skin

Black vomit.



cold, but not blue; frequent vomiting of same black fluid; pulseless at wrist; no urine. Died at 6.50 in same state. When her body was seen next day, was very yellow, with streaks of blue in the face, and the hands and finger nails blue. I pressed hard for an autopsy, but her husband would not permit it.

This woman and her husband lived by themselves in a tidy house on the island at the entrance to Richardson's copper ore yard, which adjoins the Cobre Company's yard. In a straight line, the house would be about 130 yards from the place where the Hecla unloaded, and nearer still to the spot where her ore was deposited. The patient's husband (whose case is given in the supplement) was on board the Hecla once between the 10th and 17th of September. She herself had not been on the vessel, but "had passed her in going to town, as hundreds of other people did." None of the crew, nor any of their goods, had been to the house, nor has she met with any of them. Mrs. Williams went on the 23d September (four days before her first vomiting, and six before her definite headache,) to see the dead body of her neighbour, Mrs. Brown, whose case is also recorded in the supplement. She was not then alarmed about the fever, but afterwards got very fearful of it.

The patient was seen during life by several medical men, who stated that the fatal cases which they had themselves recently attended exhibited nearly identical characters. It is also well to mention, as having influenced public opinion at Swansea quite as much as the assurances of the doctors, that a Cuban gentleman, Don Pedro Ferrer Landa, saw the body of Mrs. Williams after death, as well as another case which afterwards recovered, and that he recognised the precise appearances which to a practised non-medical eye are most striking in the progress of yellow fever, and after death from it. He had previously been as incredulous as the doctors themselves at first were as to the possibility of yellow fever extending itself in English latitudes.

The sudden accession, with intense head-ache and spinal pain; the high fever, giving place soon to collapse; the black vomit and yellow skin; the suppression of urine; the retention of the faculties;—these are symptoms which, with death on the third day of illness, appear to establish beyond question the diagnosis of yellow fever.

With regard to the constancy and character of the vomiting, a reference to the annexed cases will show that the symptom was present in all the 15 fatal cases. The vomited matters were unequivocally black in eight of them. Two of these eight vomited some fluid blood in addition. In four of the fatal cases the vomita were of dark matters, compared variously to coffee grounds, chocolate, and beef tea grounds, and in one of these vomita blood was also found by the microscope. In another fatal case the vomita consisted of bile and mucus only, and in two others the evidence differs as to whether the sickness was of black matter or not. In the seven cases of recovery, vomiting was observed in six. In none was it black, but in one case it resembled beef-tea; in two it consisted of bile and ingesta; in two of ingesta only; and in one the characters were not noted.

To the evidence of symptoms that the outbreak of fever was yellow fever it is to be regretted that the corroboration of post-mortem examinations could not be added. There was in the minds of the survivors an objection that proved insuperable to permit such an examination to be made.

As to the connexion of the disease with the Hecla, the evidence appears conclusive, (a) From the fact that there had been for months no other vessel in the harbour that had had any yellow fever on board:

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Sources of possible infection in this case.

Symptom of vomiting; black vomit.

Connexion of disease with Hecla.

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(b) From a consideration of dates. A vessel which has acknowledgedly lost part of its crew from yellow fever, and which lands a man on her arrival to die of that disease in a few hours, enters Swansea on Sept. 9th, and remains there till Sept. 28th. From Sept. 15th, six days after her arrival, to Oct. 4th, six days after her departure, cases of a disease previously unknown at the port break out, with the symptoms and fatality that mark it for yellow fever. The vessel leaves the dock on Sept. 28th, and takes up a distant position near the harbour mouth, and from Oct. 4th to Oct 23d, the date of this report, there is no fresh case; (3) The locality where the disease occurred again connects it with the Hecla. In a town of 30,000 people, some 18 cottages are scattered on a little low-lying island, to which the vessel importing yellow fever comes, and on which she discharges her cargo. Of the 22 cases of the fever (excluding doubtful cases of it) that subsequently break out, 11 occur in persons resident on the little island, 5 in persons who, living elsewhere in the town, have their daily work on the island, 3 in men occupied about shipping in the North Dock, and only 2 cases occur among the whole population of the large town who had no direct connexion with the island. But even these two cases occur in persons living within 150 yards of the ship, across the dock, and living in the next house but one to the cottage where the man died who was taken from the vessel on her arrival.\*

Among the cases of yellow fever recorded in the following pages will be found one of much interest, where a vessel lying close to the Hecla while her cargo was discharging left Swansea for a neighbouring port, and there lost two of her crew of four, one of them certainly from yellow fever.

But it is remarkable that the Bristol and Swansea pilots, the five seamen who helped to bring the ship into harbour, the custom house officers and men, and almost all the men employed in discharging the Hecla's cargo escaped an attack of the fever (the after history of most of them being known) although they had much more direct dealing with the ship than the persons who were attacked. For this circumstance no explanation can yet be offered, but it is one which has many parallels in etiological research, and cannot be held to constitute a material difficulty in affirming the connexion between the Hecla and the fever on shore.

During this period an almost tropical heat prevailed at Swansea, and no rain fell. Probably the climatic conditions that foster yellow fever in the West Indies have never been better imitated in Great Britain. The locality too where the cases occurred, a low lying alluvial island at the mouth of a river, is such as is particularly favourable to the disease in its native latitudes.

Was the disease  
 personally  
 contagious?

Granting the original connexion of the disease with the Hecla, it must also be granted (see tabular statement of cases) that in the great majority of instances the disease occurred in the individual without communication with any previous sufferer. But how does the evidence stand about its having been communicated in any case or cases by personal contagion? On the one side, in favour of such contagion are to be alleged the facts (a) that in one house on the island five persons of one family (Mahoney) were attacked in succession with more or less positive yellow fever and that Mrs. Williams had had the opportunity of personal contagion from the corpse of a neighbour; (b) that in

\* Of the seven doubtful cases five resided on the island; one was occupied in a vessel alongside the Hecla; and the remaining one (one of the most questionable of all the doubtful cases) alone had nothing to do with the docks or island.



another house, at a distance from the island, where a man (Colwell) died of the fever, another man (Jones) was also attacked; (c) that two cases (Hickey) originated in the immediate proximity of the house where the originally imported case (Saunders) died; (d) that one of the medical men, Dr. Griffiths, had an attack simulating yellow fever after attendance on a case. But to each these considerations there is a drawback that greatly destroys their apparent value, for (a) each of the Mahoneys and Mrs. Williams were exposed by residence near the ship to the same direct infection from her; (b) Jones, as well as his fellow lodger, had worked on the island at such an interval before as would just make the period of incubation observed in other cases; (c) the Hickeys lived within a short distance from the ship, though away from the island, or if they did get the disease from Saunders, being the only people who received the disease from another, the fact that Saunders came direct from the Hecla, and might have brought some of her atmosphere with him, separates this case from all others of apparent personal contagion; and lastly (d) Dr. Griffiths' case is weak, inasmuch as his symptoms were, in some essential features, unlike those of slight cases of yellow fever, and also inasmuch as there was with him no exposure till two days before his attack, a period below the incubation time of the disease as observed in Swansea.

On the other side the evidence tending to negative personal contagion is about as strong as such evidence can by its nature ever be. Persons exposed to the fever-producing influences about the docks lay sick of yellow fever in various parts of the town; Norman at Clifton Row, Bowen at Fynone Street, Margaret Williams at Gower Place, Jesse at Greenfield Street, Thomas at Sketty, Lilley at Clifton Hill, Colwell and Jones (for it is fair to quote them on this side the question) at Lower Rodney Street, Wilkins at Bethesda terrace, Mrs. Wilson at Mansell Street, and Nathaniel Williams at Powell Street. Moreover Slocum died at Llanelly, and Stapleton was sick at Frampton-on-Severn and no extension of the fever occurred at either of those places. Thus that there were twelve centres from whence the disease, if it had been communicable from person to person, had the opportunity of spreading, and many of these localities were perfectly adapted for the spread of contagious diseases; yet in no single instance out of all these did any person (whose business did not lead them to the infected neighbourhood of the docks) get yellow fever or any disease at all simulating it. The conclusion then appears indisputable, that if the fever was communicable at all by personal contagion it was so only in an extremely feeble degree. If it had behaved like any of the more contagious fevers, such as small-pox, measles, typhus, or relapsing fever, it is quite certain that no such account as this could be given.—The contrary belief, that infection was received by each person severally, direct from the Hecla, is further rendered very strong by the fact that after the removal of the Hecla (and allowing for the incubation period in persons already infected) no fresh attack whatever occurred on the island or elsewhere, although the same climatic conditions persisted for some time after.

#### § IV.

It remains now to state what further precautions were taken for the protection of the public health, and how my instructions were carried out in advising the local authorities and others. On Sept. 28th, though the evidence connecting the outbreak solely with the Hecla, and its persistence with her continued presence in dock, was not so strong as afterwards appeared, it was seen to be a wise precaution to get the vessel immediately out of dock and I accordingly urged this measure upon the

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agent for the owners, and obtained his consent to her removal the same night. Means to this end were indeed being adopted at the time of my visit. The mayor had urged on the agent and on the owners the desirability of removing the vessel, and the popular voice was expressed to the same effect in mutterings that the *Hecla* should be burnt if she lay another night in the dock. Thus on the evening of the 28th the vessel was taken out of the North Dock and placed alongside the east pier of the harbour, a good mile away from inhabited houses and other shipping. The result was what has been stated. Given six days for the manifestation of the disease in those that had already caught it before the *Hecla* was removed, no fresh instance of the fever occurred afterwards, although before her removal fresh people were coming under infection from day to day. After the removal of the ship further measures of disinfecting her were recommended. The previous processes, that had consisted mainly of evolving chlorine in the ship, appear to have been no avail. This could not indeed be established on Sept. 28th; but it was suggested at that time that a dry gas would probably not be so effectual a purifier as the application of the disinfectant in solution to all parts of the wood-work of the ship. Accordingly, on Sept. 29th and 30th, the vessel was thoroughly washed all over with a solution of chloride of lime, and the bilge was mixed with the same substance and was then pumped out.\*

The removal of the vessel out of dock involved serious responsibility on the part of her agent from the chance of injury or loss befalling her. After the second disinfection, therefore, and again, on the 10th Oct., when high winds had begun to prevail, application was made to medical practitioners in Swansea and to myself to certify that she might be re-admitted into dock with safety to the public health. Such certificate was refused however until Oct. 14th, when evidence was furnished to us that the climatic conditions of the port (see Mr. Rosser's tables in the Supplement) had undergone very considerable change, particularly that the temperature, both maximum and minimum, had been maintained at a greatly reduced point for several days.

A further precaution that appeared to be desirable was carried out by the agent of the Cobre company. The ore out of the *Hecla* was well washed over with solution of chloride of lime.

In all houses where cases of yellow fever occurred, the mayor acting for the Board of Health, caused the whole premises to be limewhited, and fumigated with chlorine. Dead bodies were buried without delay, usually within 24 hours.

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\* Respecting the bilge water, it is stated that this was unlikely to be retentive of poisonous matter, inasmuch as copper-carrying ships are not built so tight but that water is constantly getting into them, and is being as constantly removed by pumping. So the bilge had not been previously disinfected, but it seemed wise to have it dealt with on the second disinfection.

(Supplement A.)—EXTRACTS from MR. ROSSER'S METEOROLOGICAL JOURNAL for 1863.

N.B.—Entries made at 9 a.m. each Morning for 24 hours. Barometer in inches. Thermometer in degrees Fahrenheit.

Day of Month.	JULY.						AUGUST.						SEPTEMBER.						OCTOBER.											
	Temperature.			Rainfall in 24 Hours.			Temperature.			Rainfall in 24 Hours.			Barometer.			Temperature.			Average of previous 24 Hours.			Wind.			Rainfall in 24 Hours.			Temperature.		
	In Sun.		In Shade.	In Sun.		In Shade.	In Sun.		In Shade.	In Sun.		In Shade.	Height at 9 a.m.		Thermo- meter.	In Sun.		In Shade.	In Sun.		In Shade.	Direction.		Force in Lbs. per Square Foot.	Velocity in Miles per Hour.	Rainfall in 24 Hours.	In Sun.		In Shade.	
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.		
1	76	50	62	48	53	53	75	51	74	50	51	60	30.16	60	68	63	64	38	2.21	6.13	21	4	58	39	38	20	51	54		
2	75	53	63	53	49	49	91	52	75	51	52	60	29.78	64	72	64	44	4.50	4.50	35	18	58	38	38	20	51	54			
3	85	50	66	49	45	45	91	53	79	52	52	60	29.72	60	70	65	43	2.42	2.42	30	15	57	44	44	44	44	44			
4	87	47	75	45	41	41	78	46	68	44	44	60	29.92	63	70	66	50	2.21	2.21	22	5	57	44	44	44	44	44			
5	83	51	66	51	46	46	74	52	72	44	44	60	29.79	59	63	56	40	1.81	1.81	19	35	56	35	35	35	35	35			
6	90	57	68	55	55	55	72	53	70	51	51	60	29.97	58	63	65	36	18.00	18.00	60	70	54	35	32	41	41	41			
7	82	56	68	55	53	53	70	55	70	50	50	10	29.72	62	68	68	43	3.13	3.13	25	50	59	39	39	39	39	39			
8	75	57	71	53	53	53	70	55	70	51	51	10	30.03	58	65	59	37	2.64	2.64	20	—	55	40	40	40	40	40			
9	77	57	75	50	50	50	68	52	68	50	50	1	30.92	58	65	59	37	3.13	3.13	25	—	55	40	40	40	40	40			
10	87	61	73	55	55	55	73	49	73	49	49	2	30.97	57	60	54	41	.980	.980	14	1	57	39	39	39	39	39			
11	85	64	75	59	59	59	73	49	73	49	49	2	30.27	58	64	55	41	.980	.980	14	1	54	38	38	38	38	38			
12	86	65	83	55	55	55	80	46	73	44	44	—	30.37	58	60	53	36	.605	.605	11	—	59	42	42	42	42	42			
13	90	63	82	58	58	58	87	45	75	43	43	—	30.44	56	60	53	35	.980	.980	14	—	54	39	39	39	39	39			
14	79	57	73	51	51	51	89	55	76	51	51	—	30.26	58	60	53	36	.980	.980	14	—	54	39	39	39	39	39			
15	96	56	79	50	50	50	78	54	75	53	53	15	30.44	60	61	56	39	.980	.980	14	—	53	43	43	43	43	43			
16	101	63	85	55	55	55	76	53	73	50	50	4	30.14	60	61	56	39	.980	.980	14	—	53	43	43	43	43	43			
17	80	48	78	48	48	48	76	46	60	42	42	19	30.20	61	69	60	41	1.12	1.12	15	—	53	43	43	43	43	43			
18	88	42	70	42	42	42	76	46	60	42	42	2	29.82	63	69	63	45	2.64	2.64	23	—	55	43	43	43	43	43			
19	77	37	70	37	37	37	71	47	60	42	42	2	29.86	56	62	53	38	12.50	12.50	50	16	53	44	44	44	44	44			
20	86	42	75	42	42	42	82	47	63	41	41	2	29.86	56	62	53	38	6.13	6.13	35	10	55	42	42	42	42	42			
21	80	42	75	42	42	42	82	47	63	41	41	—	29.86	56	62	53	38	5.45	5.45	33	7	57	45	45	45	45	45			
22	61	47	61	47	47	47	90	54	65	46	46	1	29.86	55	60	52	37	4.21	4.21	20	7	60	42	42	42	42	42			
23	68	39	68	40	40	40	77	55	65	46	46	15	29.86	55	60	50	37	3.13	3.13	30	108	54	40	40	40	40	40			
24	83	38	70	38	38	38	62	52	60	44	44	15	29.86	54	59	48	33	1.81	1.81	19	42	53	39	39	39	39	39			
25	84	44	70	44	44	44	65	51	62	42	42	14	30.06	54	50	47	35	.980	.980	14	5	49	32	32	32	32	32			
26	75	44	70	44	44	44	65	49	62	42	42	11	30.17	54	52	47	33	1.62	1.62	18	—	55	31	31	31	31	31			
27	90	44	80	44	44	44	65	51	62	42	42	63	29.77	54	52	48	35	7.92	7.92	38	35	56	35	35	35	35	35			
28	89	43	79	43	43	43	85	52	60	42	42	—	29.77	54	52	48	35	2.42	2.42	22	9	59	32	32	32	32	32			
29	89	43	79	43	43	43	85	52	60	42	42	—	29.87	55	56	53	34	2.00	2.00	20	17	59	32	32	32	32	32			
30	100	44	79	43	43	43	75	44	62	41	41	14	29.87	55	56	53	34	—	—	—	—	—	—	—	—	—	—			
31	92	50	80	49	49	49	72	44	68	42	42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—			

APPENDIX.  
No. 16.  
On Yellow  
Fever at  
Swansea, by  
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## APPENDIX.

No. 16.  
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## EXTRACTS from METEOROLOGICAL JOURNAL for 1864.

N.B.—Entries made at 9 A.M. each Morning for previous 24 hours.

Day of Month.	JULY.										AUGUST.										SEPTEMBER.										OCTOBER.									
	Temperature.					Rainfall in 24 Hours.					Temperature.					Barometer.					Wind.					Rainfall in 24 Hours.					Temperature.									
	In Sun.					In Shade.					In Sun.					Height at 9 a.m.					Average of previous 24 Hours.					In Sun.					In Shade.									
	Highest.	Lowest.	In Shade.	Lowest.	Highest.	Highest.	Lowest.	In Shade.	Lowest.	Highest.	Highest.	Lowest.	In Shade.	Lowest.	Highest.	Thermo- meter.	Force in lbs. per Square Foot.	Velocity in Miles per Hour.	Rainfall in Hundredths of the Inch.	Direction.	Highest.	Lowest.	In Sun.	High- est.	Low- est.	In Shade.	High- est.	Low- est.	In Sun.	High- est.	Low- est.	In Shade.	High- est.	Low- est.						
1	69	74	70	60	60	61	56	52	48	15	72	75	70	68	63	30.08	3.13	25	—	W	72	68	51	51	51	3.13	25	—	W	82	72	52	52	52						
2	71	76	71	61	61	62	57	53	49	—	73	76	71	69	64	29.86	6.13	33	—	W.S.W.	73	69	53	53	53	6.13	33	—	W.S.W.	83	73	53	53	53						
3	72	77	72	62	62	63	58	54	50	—	74	77	72	70	65	29.80	1.980	14	—	W.S.W.	74	70	54	54	54	1.980	14	—	W.S.W.	84	74	54	54	54						
4	73	78	73	63	63	64	59	55	51	—	75	78	73	71	66	29.94	1.62	18	—	W.S.W.	75	71	55	55	55	1.62	18	—	W.S.W.	85	75	55	55	55						
5	74	79	74	64	64	65	60	56	52	—	76	79	74	72	67	30.02	6.13	23	—	W.S.W.	76	72	56	56	56	6.13	23	—	W.S.W.	86	76	56	56	56						
6	75	80	75	65	65	66	61	57	53	—	77	80	75	73	68	30.06	4.21	30	—	W.S.W.	77	73	57	57	57	4.21	30	—	W.S.W.	87	77	57	57	57						
7	76	81	76	66	66	67	62	58	54	—	78	81	76	74	69	30.06	4.60	30	—	W.S.W.	78	74	58	58	58	4.60	30	—	W.S.W.	88	78	58	58	58						
8	77	82	77	67	67	68	63	59	55	—	79	82	77	75	70	30.06	7.22	38	—	W.S.W.	79	75	59	59	59	7.22	38	—	W.S.W.	89	79	59	59	59						
9	78	83	78	68	68	69	64	60	56	—	80	83	78	76	71	30.10	9.69	54	—	W.S.W.	80	76	60	60	60	9.69	54	—	W.S.W.	90	80	60	60	60						
10	79	84	79	69	69	70	65	61	57	—	81	84	79	77	72	30.10	3.13	25	—	W.S.W.	81	77	61	61	61	3.13	25	—	W.S.W.	91	81	61	61	61						
11	80	85	80	70	70	71	66	62	58	—	82	85	80	78	73	29.92	1.44	17	—	N.W.	82	78	62	62	62	1.44	17	—	N.W.	92	82	62	62	62						
12	81	86	81	71	71	72	67	63	59	—	83	86	81	79	74	29.94	7.61	20	—	N.W.	83	79	63	63	63	7.61	20	—	N.W.	93	83	63	63	63						
13	82	87	82	72	72	73	68	64	60	—	84	87	82	80	75	29.60	3.92	28	—	N.W.	84	80	64	64	64	3.92	28	—	N.W.	94	84	64	64	64						
14	83	88	83	73	73	74	69	65	61	—	85	88	83	81	76	29.60	5.45	33	—	N.W.	85	81	65	65	65	5.45	33	—	N.W.	95	85	65	65	65						
15	84	89	84	74	74	75	69	66	62	—	86	89	84	82	77	29.32	1.44	17	—	N.W.	86	82	66	66	66	1.44	17	—	N.W.	96	86	66	66	66						
16	85	90	85	75	75	76	70	66	62	—	87	90	85	83	78	29.43	7.20	12	—	N.W.	87	83	67	67	67	7.20	12	—	N.W.	97	87	67	67	67						
17	86	91	86	76	76	77	71	67	63	—	88	91	86	84	79	29.64	1.28	16	—	N.W.	88	84	67	67	67	1.28	16	—	N.W.	98	88	67	67	67						
18	87	92	87	77	77	78	72	68	64	—	89	92	87	85	80	29.80	6.13	13	—	N.W.	89	85	68	68	68	6.13	13	—	N.W.	99	89	68	68	68						
19	88	93	88	78	78	79	73	69	65	—	90	93	88	86	81	29.93	3.64	27	—	N.W.	90	86	69	69	69	3.64	27	—	N.W.	100	90	69	69	69						
20	89	94	89	79	79	80	74	70	66	—	91	94	89	87	82	29.80	2.00	20	—	N.W.	91	87	70	70	70	2.00	20	—	N.W.	1	91	70	70	70						
21	90	95	90	80	80	81	75	71	67	—	92	95	90	88	83	29.74	5.45	33	—	N.W.	92	88	71	71	71	5.45	33	—	N.W.	2	92	71	71	71						
22	91	96	91	81	81	82	76	72	68	—	93	96	91	89	84	30.06	2.00	20	—	N.W.	93	89	72	72	72	2.00	20	—	N.W.	3	93	72	72	72						
23	92	97	92	82	82	83	77	73	69	—	94	97	92	90	85	30.18	1.12	15	—	N.W.	94	90	73	73	73	1.12	15	—	N.W.	4	94	73	73	73						
24	93	98	93	83	83	84	78	74	70	—	95	98	93	91	86	30.38	1.405	9	—	N.W.	95	91	74	74	74	1.405	9	—	N.W.	5	95	74	74	74						
25	94	99	94	84	84	85	79	75	71	—	96	99	94	92	87	30.38	2.88	24	—	N.W.	96	92	75	75	75	2.88	24	—	N.W.	6	96	75	75	75						
26	95	100	95	85	85	86	80	76	72	—	97	100	95	93	88	30.38	1.62	18	—	N.W.	97	93	76	76	76	1.62	18	—	N.W.	7	97	76	76	76						
27	96	101	96	86	86	87	81	77	73	—	98	101	96	94	89	30.35	.720	10	—	N.W.	98	94	77	77	77	.720	10	—	N.W.	8	98	77	77	77						
28	97	102	97	87	87	88	82	78	74	—	99	102	97	95	90	30.30	.500	—	—	N.W.	99	95	78	78	78	.500	—	—	N.W.	9	99	78	78	78						
29	98	103	98	88	88	89	83	79	75	—	100	103	98	96	91	30.19	—	—	—	N.W.	100	96	79	79	79	—	—	—	N.W.	10	100	79	79	79						
30	99	104	99	89	89	90	84	80	76	—	101	104	99	97	92	—	—	—	—	N.W.	101	97	80	80	80	—	—	—	N.W.	11	101	80	80	80						
31	100	105	100	90	90	91	85	81	77	—	102	105	100	98	93	—	—	—	—	N.W.	102	98	81	81	81	—	—	—	N.W.	12	102	81	81	81						



## EXTRACTS from METEOROLOGICAL JOURNAL for 1865.

N.B.—Entries made at 9 A.M. each Morning for previous 24 hours.

Day of Month.	JULY.					AUGUST.					SEPTEMBER.					OCTOBER.*				
	Temperature.					Rainfall in 24 Hours.					Barometer.					Wind.				
	In Sun.					In Shade.					Height at 9 a.m.					Average of previous 24 Hours.				
	Highest.	Lowest.	Highest.	Lowest.	Highest.	Highest.	In Shade.	Lowest.	Highest.	Lowest.	Highest.	In Sun.	Highest.	Lowest.	Highest.	Direction.	Force in Lbs. per Square Foot.	Velocity in Miles per Hour.	Rainfall in 24 Hours.	Inch.
1	79	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
2	80	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
3	82	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
4	80	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
5	80	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
6	80	—	65	45	3	30.25	63	70	55	—	30.25	63	70	55	—	N.W.	1.62	18	2	—
7	72	—	67	53	15	30.15	68	80	60	—	30.15	68	80	60	—	N.W.	1.62	18	2	—
8	70	—	67	53	15	30.15	68	80	60	—	30.15	68	80	60	—	N.W.	1.62	18	2	—
9	75	—	68	55	10	30.08	68	85	60	—	30.08	68	85	60	—	N.W.	1.62	18	2	—
10	75	—	68	55	10	30.08	68	85	60	—	30.08	68	85	60	—	N.W.	1.62	18	2	—
11	79	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
12	79	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
13	75	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
14	73	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
15	73	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
16	77	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
17	89	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
18	89	—	70	53	—	30.36	66	69	60	—	30.36	66	69	60	—	N.W.	1.62	18	2	—
19	70	—	75	57	28	30.47	63	85	75	—	30.47	63	85	75	—	N.W.	1.62	18	2	—
20	75	—	75	57	28	30.47	63	85	75	—	30.47	63	85	75	—	N.W.	1.62	18	2	—
21	75	—	75	57	28	30.47	63	85	75	—	30.47	63	85	75	—	N.W.	1.62	18	2	—
22	93	—	83	54	68	30.23	63	90	75	—	30.23	63	90	75	—	N.W.	1.62	18	2	—
23	94	—	83	54	68	30.23	63	90	75	—	30.23	63	90	75	—	N.W.	1.62	18	2	—
24	80	—	78	57	30	30.43	63	88	70	—	30.43	63	88	70	—	N.W.	1.62	18	2	—
25	89	—	78	57	30	30.43	63	88	70	—	30.43	63	88	70	—	N.W.	1.62	18	2	—
26	95	—	78	57	30	30.43	63	88	70	—	30.43	63	88	70	—	N.W.	1.62	18	2	—
27	85	—	78	57	30	30.43	63	88	70	—	30.43	63	88	70	—	N.W.	1.62	18	2	—
28	98	—	78	57	30	30.43	63	88	70	—	30.43	63	88	70	—	N.W.	1.62	18	2	—
29	75	—	75	57	30	30.23	63	95	75	—	30.23	63	95	75	—	N.W.	1.62	18	2	—
30	75	—	75	57	30	30.23	63	95	75	—	30.23	63	95	75	—	N.W.	1.62	18	2	—
31	90	—	75	57	30	30.20	63	85	75	—	30.20	63	85	75	—	N.W.	1.62	18	2	—

\* October completed while this report in press.

APPENDIX.  
No. 16.  
On Yellow  
Fever at  
Swansea, by  
Dr. Buchanan.

## APPENDIX.

## SUPPLEMENT B.

No. 16.  
On Yellow  
Fever at  
Swansea, by  
Dr. Buchanan.

*Yellow fever; recovery.* — Norman, aged 25, ship-rigger, living at Clifton Row. Began to ail on morning of September 15, feeling dull, with pain in head and lower part of belly, and feeling sick though he did not vomit.

Seen by Mr. Andrew Davies on Sunday, September 17th; then had intense headache, much noisy delirium, great pyrexia, slight yellowness of skin and eyes, urgent vomiting of all ingesta and of mucus, but nothing that was black or bloody, but about this time a little epistaxis. Continued in this state with same kind of vomiting, and two or three pale stools daily for four days, and then began to mend. Seen by myself on October 1st, sitting up dressed, skin cool, sweating freely, no eruption whatever; pulse 90, weak, has been as low as 48; tongue quite clean, rather red; appetite returning; urine reported to be "very brown," plentiful; much jaundiced; liver 3 inches below false ribs; no epigastric tenderness.—During convalescence this patient got two abscesses, the first in the ham, the second deep in the posterior part of the thigh. They progressed very slowly and materially retarded his recovery.

Norman lives with his family in a clean house up a hill, far away from the docks; his business takes him down to the North Dock daily. On the day of the Hecla's arrival (September 9th), between 11 and 12 a.m., went on board her to see the chief mate. He was by when Saunders was lowered over the side of the vessel. Observed that the ship smelt badly, before the hatches were up; the stink coming up from the fore-castle chiefly. This was before any chemicals were used to the ship. Was on board for about a quarter of an hour. Next week, Norman was working on the ship *Deerhound*, which lay astern of the Hecla, and went on board the Hecla once or twice.

Up to October 21st, no one else was ill in Norman's house.

*Yellow fever; death.* David Bowen, 33, Custom House officer; lived at 3, Fynone Street. A strong healthy man until he was taken, on September 17th, with sudden headache and pain in the back, no rigor; headache got speedily so intense that he almost raved with it; took some pills, and had a stool on the 18th from them.

Seen by Dr. Griffiths on Tuesday 19th, and found in bed; face and eyes much injected; skin intensely hot and dry; no jaundice; tongue moist, with much white fur; complete anorexia; no vomiting, but some nausea; pulse 110 to 120. Pain in head and back, with fever, being the prominent symptoms, small-pox was suspected. Calomel and salines ordered. On September 20th, skin cooler and moist, less flushed; headache much less, and felt much better; tongue cleaner; bowels well open. He had vomited after every dose of his medicine, but the characters of the vomita had not been observed.

Dr. Griffiths was himself too ill to see Bowen again; for the rest of his life the man was attended by Dr. Wilks. On the morning of September 21st he was vomiting after all food, and after every dose of a hydrocyanic acid mixture. Vomit looked like coffee grounds, and was offensive, with an almost faecal odour. There was slight pain, but no tenderness in the epigastrium. No diarrhoea. Ordered milk and chicken broth, and to continue hydrocyanic acid. At 4 p.m. the vomiting of same matters continuing, all food and medicine omitted, and ice only given. The man was getting weaker. At 7 p.m. vomiting copious and frequent, and ejecta more black than before. Sal volatile and æther ordered. At 11 p.m., in same state, and draught of chloroform, æther, and hydrocyanic acid given. On September 22d, the sixth day of the disease, found to have slept a little, he "felt much better, and should go out with his wife," he "only felt weak." At this time his mind was quite clear, and his headache gone, he was not collapsed. Skin not very hot. A few dusky spots, to which Dr. Wilks attaches no importance, seen on trunk. Slight jaundice, especially of conjunctiva, noticed this morning for the first time. Urine scanty, thick, very high coloured as if from bile. Albumen not sought for. At 8 p.m., again visited. Delirium had come on at 2 p.m., vomiting had ceased, and man was cold, bluish, and collapsed, and died same night. Autopsy not permitted.

Bowen's duty was to patrol the North Quay on the side next to which the Hecla lay. From September 10th to 16th, his hours of patrol were from 4 p.m. to midnight, and on the previous week from midnight to 8 a.m. His house is situated far away from the water at the western outskirt of the town, and is a tidy better class residence. Bowen had not been near any sick people. Special inquiry was made as to whether he had been on the Hecla. It is almost universally stated and believed in the town that he had been on board her; but upon following up this rumour to two persons who were alleged to have separately vouched for its truth, they both denied that Bowen told them so, or that they knew the fact of their own knowledge. Bowen's wife asked him whether he had been on the Hecla, and he denied it. It would have been a dereliction of duty if he had left his patrol to go on board the ship.

No other person was ill at Bowen's house up to October 21st.

P.S.—Since the above was written, the shipkeeper gives conclusive evidence that Bowen was on board the Hecla; he went to get some honey, because his throat felt sore; but this was on the 15th September; and he was again on board her the day before he was taken ill.

*Yellow fever; death.* Margaret Brown, married, aged 20, lived at Ferryside. Taken ill on evening of Monday, September 18, almost suddenly, with pains in loins and head.

Found by Mr. Shepherd, mid-day on 19th, in bed, with much fever, quick pulse, dry brown tongue, vomiting all food, even water. Bowels somewhat confined. No delirium.

Complaining so strongly of pains in head and back that small-pox was thought of. Calomel ordered. On September 20th, third day, bowels relieved by medicine and an injection; a dark stool; not seen. In the evening she began to vomit black stuff, looking like thin soot and water, and became delirious. On Thursday 21st found much worse; delirium, and vomiting of same matter, continuing. Not collapsed. No marked jaundice. In the afternoon of this day delirium ceased. Her skin was cooler, her tongue still dry; her strength was less, but she was not actually collapsed, and in the evening the vomiting ceased. She felt more comfortable, and looked better. Soon after 8 o'clock a.m. on September 22d, Mr. Shepherd was fetched to her, and found her dead. She had not been markedly yellow to the end, nor greatly so even after death. There was no autopsy.

Mrs. Brown lived with her husband and her father's family in a house about 160 yards from the wharf where the Hecla was unloaded, and about half that distance from the yard into which the Hecla discharged her copper ore. She had not been near the Hecla; the week before her illness she had repeatedly been to see her father, who was in charge of another ship which lay in the North Dock. This vessel, the Glendulal, also came from Cuba; but her log shows that she had no sickness on board during her whole voyage.

Mrs. Brown had had nothing whatever to do with any sick people, nor with any of the crew of the Hecla nor with their clothes.

Her husband arrived at Swansea from Liverpool on September 14th, having come to England by the San Jose from Chili direct.

Up to the date of this report no one else had been ill in this house. Brown was well, and at work upon the San Jose, which had reached Swansea from Liverpool on the 29th September.

*Yellow fever; recovery.* Margaret Williams, aged 21, servant at Mr. Trestrail's house, abutting on Cobre Company's Yard. Taken ill at 4 o'clock on the morning of September 18; woke in the night, and found herself sick, and when she got out of bed was almost too weak to stand. All that day was sick, vomiting food, but nothing bitter. From the first she had headache, pain in the bowels, in the back and loins, and her legs felt aching and stiff. On the 19th, walked home to her mother's house in Gower Place, a distance of about three-quarters of a mile. Soon after she vomited about the floor, the desire coming on so suddenly, and continued to vomit frequently until seen by Dr. Griffiths on September 23d.

On that day she was found rolling about and rambling, complaining of no localized pain, but pain all over her. Her face was flushed and dusky; skin very hot, and conjunctivae slightly yellow. Vomiting frequently, only ingesta and perhaps bile, and nothing black. Bowels confined. Pulse, 110. Calomel and colocynth ordered. On September 24, Mr. Mowatt, of the infirmary, took charge of the case, and describes the same symptoms persisting up to the 29th, and then beginning to abate. She was feverish and jaundiced, but the vomiting had ceased when seen on October 1. On October 3, yellowness less, but still very distinct. Has sat up, and has eaten a little food last three days. Tongue clean, moist, not too red. Pulse, 102. Has lost flesh moderately, and is giddy when she walks about.

This girl lived in a house that was separated from the wharf where the Hecla lay only by the Cobre Company's Yard, and in this yard the ore from the Hecla was strewn. She had not been on board the Hecla, but had often passed by her. She had nothing to do with any of the crew of that vessel nor with their clothes, nor had she been visiting any sick person.

The house in Gower Place to which Williams went is ill-ventilated in a close and dirty court. The room in which the girl lay was so small that it scarcely more than held the bed. Other persons lived in the house, but no others slept in that room. Up to October 21 no case of similar sickness had occurred in this house or court.

*Doubtful Yellow fever; recovery.* Miss Trestrail, daughter of the house where Margaret Williams was servant. Taken ill at 3 a.m. on September 23. Seen by Mr. Andrew Davies on that day. Had intense headache, obstinate vomiting and epigastric pain, with some pain in back.

These symptoms continued for next two days, and then vomiting got better and headache disappeared. She had no jaundice up to this time.

Mr. Davies advised her removal to the country, and she was taken away accordingly on September 26. He did not see her again, but learns that she kept her bed a couple of days, and then got steadily better.

Miss Trestrail is believed not to have had to do with the Hecla or anything out of her, further than the closeness of her residence to the ship and to the copper ore wharf. These points are noted in Margaret Williams' case. The day before her illness, Miss Trestrail had walked in company with Mrs. Wilson (also a fatal case of the same disease) from home into the town, and had gone on to Gower Place to see the girl Williams.

*Yellow fever; death.* John Jesse, aged 24, an apprentice in Messrs. Richardson's ship building yard, lived at 9, Greenfield Street. Had been at work on 16th, taken ill on September 18th. Seen by Mr. Davies's assistant on September 20th, when he had a hot skin, flushed face, delirium; with tongue red, dry in centre, epigastrium tender, and vomiting all his food. Pulse full, over 100. On September 21st felt better; pulse 80; tongue cleaner; but vomiting continued; ejecta not seen. On 22d seen by Mr. A. Davies,

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and was then vomiting constantly and copiously; vomited matter was quite black, looking like dark powder suspended in colourless liquid, scarcely tinged white paper dipped into it. Tongue red, and in centre dry and brown. Diarrhoea present, with dark stools. Strongly jaundiced, but no eruption on skin; urine scanty, with a slight tinge of bile; albumen not noted. At this time did not complain of much pain; was in a collapsed and half comatose state, from which he could be roused. He died the same evening during an effort of vomiting.

This man was at work daily in the "patent slip" of the ship building yard adjacent to the Cobre Wharf where the Hecla discharged her cargo. From 9th to 15th September he worked on the Fort Regent, a ship that had lately come from Australia, and which lay at the end of the patent slip nearest to the wharf. He had no business on board the Hecla, and contradictory accounts were received as to whether he had been on board her, but from the evidence of a fellow workman, named Huxtable, who was himself on the Hecla with Jesse, it is certain that Jesse was on that ship for at least a quarter of an hour on September 9th.

The house in which Jesse lived is in the middle of the town, above one third of a mile away from the Hecla in a straight line. Up to October 21st, no other case of illness had occurred in the house.

*Yellow fever; death.* Sarah Wilson, aged 52, married, living in Richardson's Yard. Had previously been subject to fits, and has for years complained of her heart. Was in her usual health on September 22d, in the middle of the day, when she left her house, and walked into the town to 5, Mansell Street, her daughter's house, a distance of some three quarters of a mile. While there she was taken suddenly ill with a chill and headache, which got worse, and she was quite delirious at night.

She was seen on morning of 23d by Dr. Griffiths, who found her in bed, rolling about, with great pain in the back of her head and spine, and complaining too of cramps in the legs. Her face was red and flushed. Skin hot, moist. Pulse about 110. Vomiting of all ingesta. Bowels confined. Not jaundiced. Dr. Griffiths talked over the case with a brother physician, suspecting that the strange symptoms might be due to spinal meningitis. Ordered calomel and saline. She was reported to be better in the afternoon. On 24th Dr. Griffiths, though himself very unwell (see his own case after), went to see her, and found her apparently better, saying she should go home to-morrow. But her vomiting continued in spite of remedies, and was now of a dark matter. In the evening, her husband came to say that his wife's throat was very bad, and that she had been still sick, with blood in the vomit. At one a.m. on the 25th a message was sent to Dr. Griffiths that she was vomiting blood; he went to her, and found her dead, with much bright blood about her linen and bedclothes. He examined the throat, and found no appearance of the blood having come from the fauces. An autopsy was refused, and Dr. Griffiths was obliged to make the best guess he could as the cause of death for a certificate, and, knowing then nothing of the existence of yellow fever, conjectured that the symptoms were due to some disease of the heart or great vessels. But afterwards, looking back on her whole case, and influenced by what he has since seen of other cases, and by the character of the illness of Mrs. Wilson's daughter, Dr. Griffiths considers that the death was in all probability from yellow fever.

The house in which Mrs. Wilson had lived up to her illness is situated close to the end of the Cobre yard, which alone separated it from the wharf where the Hecla unloaded. The copper ore out of the ship was placed in this yard. Mrs. Wilson had been much at home, and it is pretty certain that she never was nearer to the Hecla than her own house. Her husband had been three times on board the vessel, at uncertain dates, the last time probably on the 21st September. Her sons had been about the docks, but deny having been near the Hecla. Nothing had been brought from the ship to her house, nor had any of the crew or their things been there. She had had no communication with any sick person.

*Doubtful slight yellow fever; recovery.* The husband of this last patient, who has been above referred to, was ailing on the day of his wife's death and funeral, the 25th September, and sent for Mr. Thomas, who found he had pains in the head, was feverish, and had dryish tongue, with dark yellow fur; he had vomited food, but nothing else, and was not purged. I saw him myself on October 28th, and found him sitting up, his mind clear, head not aching, no pain about him. Pulse 78, strong; temperature, 96° 32'. Skin cold, perspiring. Tongue moist, white, pale. No epigastric tenderness; liver not enlarged; a very questionable yellowness of face and eyes, none of trunk. Four or five dark loose stools yesterday, not from medicine. Upon inquiry after Wilson on October 1st and following days, he was always found out of doors, and reported well.

*Probably yellow fever; recovery.* Mary Ann Wilson, aged 18, a daughter of the preceding. Began to be ailing on evening of 25th September, with headache and nausea. Next day throat was somewhat sore. Seen by myself on 28th, and found pale, perspiring, and faint, feeling chilly and giddy, and her head aching, but no other pain. Pulse 126. Temperature 103° 80'. No jaundice. Tongue moist, foul; no vomiting; has taken no food to-day. Two stools to-day, not observed. Seen again on October 1st, lying down dressed, feeling better. Skin cooler, 101° 40' in axilla. Pulse 102. No jaundice. Tongue clean, natural colour. Anorexia continues. Has vomited yellow bitter stuff every day since 28th; twice to-day. Bowels natural. On October 3d, she continued to vomit food and bile, but had no jaundice. Tongue clean, and moist. Bowels regular; stools neither very dark nor very light, she says. Pulse 80. Skin still hot, dryish, but occasionally perspires. Has no pain in head, back, or legs. Feels better, and can stand

to-day. October 5th, quite convalescent; appetite returning. Skin of natural temperature; not jaundiced.

This patient had been in circumstances identical with her mother's, as regards exposure to sources of infection.

Under the same roof with these patients are offices of the Messrs. Richardson, into which numbers of people come on business; and the Wilson's family comprises others than those noted; but the sickness did not extend to any other person in the premises.

At Mansell Street, where Mrs. Wilson lay through her illness, no other person was taken ill up to October 21st.

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*Yellow fever; death.* William Thomas, æt 23, another apprentice in Messrs. Richardson's yard, lived at Sketty, a village two miles off Swansea to the west. Was ailing a fortnight before he sent for medical advice, but had nothing definite the matter with him till September 26th, when on waking in the morning he had severe headache and backache. He was very feverish, with rigors and much headache, when seen on that day by Mr. Davies's assistant; his pulse was 110, full, scarcely compressible; no eruption on the skin, which was hot and moist. No epistaxis. Slight nausea and epigastric tenderness. No vomiting; no stool for two days. Urine plentiful, of natural colour. On September 27th, vomited food and mucus, and afterwards bitter yellow and green stuff, and more epigastric tenderness; scarcely any delirium. Seen by Mr. Andrew Davies and myself on 28th; less headache and feels better; answers well. Skin hot; guessed at 101°, moist, not yellow. No spot or eruption. Conjunctivæ yellow; pulse 82, strong, full. Respiration quiet; no cough. Tongue, reddish, moist; vomited this morning dark green matter; with a little red blood in it, perhaps amounting to a tablespoonful; at that time the nose bled slightly; has no sorethroat. Bowels open by medicine. Urine rather high coloured, but not jaundiced, good quantity; not so dark to-day as yesterday. September 29th, Mr. Davies found that he had continued better up to 10 p.m. yesterday; delirium set in at 11. In the night he dozed frequently, but wandered and talked much. Vomited six times during the night, but only ingesta. This morning, his countenance heavy; intelligence dull. Skin dusky yellow; urine in good quantity, clouded by heat and nitric acid. At six p.m. his pulse was 128, very feeble; temperature, low. Tongue protruded, and kept so. No vomiting, and no action of bowels. At 10 p.m. cannot be roused; moaning much. Vomita now black powdery; and the man is afterwards convulsed. Death at 11 p.m. on the same day.

There had been no communication between Thomas's house at Sketty and the Hecla; infection must have been got while he was at his work in the shipbuilding yard adjoining the Cobre yard. I questioned him myself as to his connexion with the Hecla, and he said he had not been on board her, and that Mr. Richardson's men had done no repairs or painting for her. He had passed by her on the quay. From a return furnished by Messrs. Richardson, it appears that Thomas was at work on the Fort Regent while in the patent slip (see Jesse's case) up to the 15th September. On the 18th he worked on the Orasio in the patent slip. On the 16th and 19th he was working on the Marquess of Worcester, which lay in the North Dock 100-120 yards to the north of the Hecla. This vessel was from Chili direct, where there is no yellow fever. On the 19th he was also on the Herradura, another vessel direct from Chili, and from that time to the day he left off work he was on the Slavonia, from the Mediterranean, in the patent slip. There had been no yellow fever in any of these ships, but they all lay within a hundred yards of the Hecla. Thomas had not been near any sick persons.

After Thomas's illness, no other person in the house or village was attacked, up to October 21st.

*Yellow fever; recovery.* James Lilley, aged 20, residing at 5, Clifton Hill, and employed as a smith in Mr. Richardson's patent slip.

Complained on October 3d, of pain in back of head, loins, and bowels, with shivering; was hot and feverish all that night. Seen by Mr. Hall on October 5th. Skin hot and dry; quick pulse. Felt sick, but did not vomit; bowels relaxed; stools thin and of a yellow colour. On October 7th feverish symptoms had subsided; pain in stomach and bowels complained of; skin tinged of a yellow colour; no appetite. Up to October 11th he remained in much the same state; intellect unaffected; temperature of skin normal, yellow colour increased; small purpuric spots observed. Pulse 72, soft. Has not vomited, but feels sick; tenderness over liver and cæcum. Bowels still relaxed with chocolate coloured stools. October 12th, has had a better night, slept at intervals; skin much as yesterday, but more purpuric spots; pulse as before. Tongue rather dry, thirsty, pain in lower part of bowels; vomited several times during night a watery fluid containing green bile; bowels open several times, thin yellow stools. October 13, is certainly better; slept nearly all night, feels more comfortable; skin of natural temperature; no new purpuric spots; old ones fading. Tongue clean, appetite returning; vomited twice, watery fluid with stringy looking mucus; two thin bilious stools. October 15, going on favourably, and feeling better. Pulse 64. Very few spots now on skin; copious sudamina; less jaundice. Tongue furred; appetite improving. Tenderness over liver and cæcum remain; liver two or three fingers breadth below margin of ribs. Two dark brown stools; urine deeply tinged with bile.

Lilley's residence is far from the island, but his work brought him daily to the North Dock.

He lay sick at the house at Clifton Hill, and during his illness there were 20 people residing in the house. The house consists of two rooms with a back kitchen on the



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ground floor, and two bedrooms above. A man and three children slept every night in the same bedroom with the patient all through his illness. But no other person in the house has been ill up to the end of October.

*Yellow fever; death.* John Colwell, aged 25, a smith, resided at 5 Lower Rodney Street. A strong hearty man. Taken ill on September 13, the principal symptoms being great fever, severe frontal headache, acute pains in back, and great prostration, and vomiting of all kind of food. On 22d, there was a marked improvement, but next day he was worse again.

Seen by Mr. Couch on 23d September. He was then jaundiced for the first time. His tongue was remarkably clean and moist. He was vomiting large quantities of black somewhat tenacious fluid. Stools were not seen. On 24th, at 5 a.m., Mr. Couch found him with dry black tongue, vomiting as before, raving and struggling frightfully. He died the same day at 11 a.m. in convulsions, having passed neither stool nor urine for 6 hours.

This patient worked at a blacksmith's shop at the back of the Cuba Hotel in the neighbourhood of the docks, but 200 yards in a straight line from where the Hecla lay. He had seen the Hecla, and when asked if he had been on board, said he would not go for 20l. He had had nothing to do with any ship. His widow believes that he saw nothing of any one or anything connected with the Hecla, and the man himself plainly stated so. He had not been near any sick people. His hours of work were from 6 a.m. to 6 p.m., and his road to work would not take him nearer the Hecla than 200 yards. Colwell lived in a tidy poor house, about a mile off his work, in the southern part of Swansea. Up to October 21st, no illness had occurred in the house since this man's death.

*Yellow fever; death.* Elizabeth Davies, aged 55, housewife, resided at Bath's Yard.—First ill on 20th September; taken with fever and vomiting; confined bowels; not much headache. On 21st, seen by Mr. Hall; obstinate vomiting continuing, of dark brownish fluid. On 22d, her skin first noticed to be yellow, particularly over abdomen; eyes not so yellow; tongue moist; not very thirsty; vomiting and fever continued. Pulse weak, not above 100. Next day the vomited matters were black, and remained so up to her death. The jaundice increased; some doubtful petechiæ were noted on skin of abdomen. For some days she had complete suppression of urine, and general convulsions for some hours before her death in the evening of September 26th. After death her body was much more yellow.

Mrs. Davies lived in a house upon the quay of the North Dock, about 140 yards above the spot where the Hecla lay while unloading. She had had no one and nothing out of the Hecla, in her house, so far as her friends knew. She had not been out of doors for some time, except each Sunday (10th and 17th September) to church, and on the day of her attack, to market. On these occasions she would pass the Hecla, but she never went on board her. She had not been near any sick people.

*Yellow fever; death.* Elizabeth Harris, aged 15, grand-daughter of preceding, and living in same house.—Taken ill on the 21st September, with symptoms that were referred to ordinary autumnal diarrhœa; dark stools and vomiting. Three days later, on the 24th, the diarrhœa was better, but the vomiting had continued, and become dark; as it soaked into the bedclothes making a stain as if chocolate had been spilt. On the 25th the tongue had become dry; there were sordes on the teeth. The skin, especially of the abdomen, was observed to be yellow. And, besides these unfavourable signs, she suddenly got into a very excited state, resembling hysteria, continually screeching, and obstinately refusing food or drink. There was no eruption on the skin. Her urine was suppressed for two days at least before death, which occurred on the evening of September 27th, the patient having got quieter, but more insensible, and the vomiting having persisted nearly to the last.

This girl lived in the same house, under the same circumstances, as her grandmother, only she had been into town most days, instead of seldom.

The house is clean and new. Up to October 21st there had been no other attack in the house.

*Yellow fever; recovery.* — Jones. The particulars of this case are thus stated in a letter from his medical attendant, Mr. Shepherd:—"He lived in the same house as Colwell, who commenced his illness on Sunday September 17th (stated to me September 19th, Tuesday) and died on the following Sunday. Jones first felt unwell "on the day after Colwell's death, September 25th. He was much better on Thursday, "and returned to work on the Tuesday following. I am not prepared to assert positively "that he suffered from yellow fever, inasmuch as there was no black vomit, but the "pyrexia, prostration, vomiting, sense of weight and uneasiness at the epigastrium, a "decided though slight tinge of yellowness, and finally the "black" (he says) purging, "and crampy pains about the legs, are symptoms which, I think, justify my belief that "he was suffering from that disease. Now as to source of infection. On one hand, "he was living in the house with Colwell, and with him a good deal. On the other, I "find that Jones was engaged on Thursday, September 14th, (three days before Colwell "began to be ill,) in carting copper ore from a French brig in the south dock to "Mr. Bath's yard, and on the day following, when he went to be paid for his labour, was "standing for some time near the Hecla, talking to a policeman about the deaths that "had occurred on board, feeling a particular interest in the matter, as one of the men "who died was a friend of his. So that we have very good evidence of the probability "of infection from the original source; with a period of incubation of 10 or 11 days."



*Yellow fever; death.* John Wilkins, æt. 18, living at Bethesda Terrace, and working in the assay office at Mr. Bath's copper ore yard.—Was taken ill on October 1st, with shivering, and pain in the head and limbs. He had a restless and disturbed night; felt very hot and feverish; and on October 2d, about 7 a.m., was seized with vomiting and purging. The purging was not much, but the vomiting continued through the whole day. Thinking he had a bilious attack, such as he had suffered from before, he took a couple of pills, such as he was in the habit of taking, and they produced large bilious evacuations. On October 3d he was seen by Mr. Hall, who had attended the former cases at Bath's Yard, who found him complaining of pain in his head and limbs. Had had a restless night, but was quite sensible. Skin very hot and dry; conjunctivæ injected; pulse quick and full; tongue rather clean; some thirst. Vomiting constantly a watery fluid containing some stringy looking mucus, and a small quantity of yellow coloured bile; had had several large dark bilious stools. On October 4th, slightly improved; pain in head and limbs not so great, but complained of giddiness. Skin cooler; vessels of conjunctivæ natural. A doubtful trace of yellowness in the skin. Pulse not so quick and less full. Sickness and diarrhoea continued, of the same character as before. October 5th, has had a better night, and fewer stools. Vomiting as before. Skin distinctly tinged yellow. Urine copious; dark from bile. On October 6th and 7th no vomiting, but in other respects much the same. Was not seen on October 8th, but found very much worse on the 9th, having become very feverish and delirious in the night, with slight epistaxis. Quieter at time of visit, but pulse very quick; sordes about the lips and gums; no vomiting; thin chocolate coloured stool from castor oil. Stool passed involuntarily. Urine retained; three pints of dark urine removed by catheter. He continued to become gradually worse, and died about 3 a.m. on October 10th. After death the skin became much more yellow.

This patient was brought by his work into the same proximity to the Hecla as the two females whose cases have just been described. Some samples of copper ore from the Hecla were assayed in Mr. Bath's office, where John Wilkins was employed.

*Yellow fever; death.* Jane Mahoney, married, aged 46, lived at 8, Cobre Row.—Illness began on September 20th, with headache, but her symptoms do not appear to have been strongly marked for the first day or two. She had medicine from a druggist on the 22d, and was seen by Mr. Mowatt, of the Infirmary, on the 23d, at 3 p.m.

She was then complaining of headache and pains in the limbs; was vomiting, but only food. Had a dry tongue and skin, and pulse about 100. She was next seen on the 25th, when the vomiting was found persisting, and the vomited matters were dark in colour: but as it appeared that this could be ascribed to some brown cake she had just eaten, the colour of the vomit attracted no particular attention. On September 26th there was marked yellowness of the skin and conjunctivæ. The patient was in a heavy semi-conscious state, answering questions coherently but languidly. Skin moist; no typhoid spots. Pulse below 80, very weak. Tongue dry and fissured; sordes on teeth. Marked abdominal tenderness; less sickness. (Mr. Mowatt never saw dark vomita, except as above described, nor could he ascertain that they had been of such colour; but Mrs. Mahoney's daughter Mary told me, on September 28th, that her mother had had much black vomiting.) Ordered brandy to be frequently repeated. On September 27th, the skin was of a peculiar dusky appearance. The sickness had ceased. The patient was more difficult to rouse, and refused to take nourishment. She sank rapidly, and died the same day.

After her death she was intensely yellow, with a peculiar lividity that struck Mr. Mowatt and myself who saw the corpse on different occasions.

Mrs. Mahoney, with her husband and eight children, lived in Cobre Row, in a small cottage consisting of two rooms, one above the other; overcrowded, therefore, and not clean. The court called Cobre Row is unpaved, with receptacles for ashes and coals in front of each house, a foul privy with a cesspool at one end, common to nine houses, and a common supply of town's water from a standtap in the court. This row of houses runs along the side of the Cobre Company's Yard, where the ore from the Hecla was deposited, being separated from the yard by a footway, and a wall some ten feet high. The Hecla, at her place of unloading, was less than a hundred yards in a straight line from the row of houses. The Mahoneys' house was the nearest but one of the row to the wharf.

The man Mahoney was employed in discharging the cargo of the Hecla on the 9th September, and again from the 11th September to about the 20th, working on board the vessel day after day. On September 9th, when people were shy of going into the hold, on account of the sickness on board, Mahoney was one of the first to go down, and stayed an hour and a half, a longer time than customary. He did not change his clothes on coming home from his work. He himself did not suffer from fever at all; he was indeed ailing on one day, on October 3d, with headache, but no vomiting, and was well the next day, after a dose of medicine from the dispensary.

None of the crew of the Hecla had come to Mahoney's house. No washing for the ship or for the sailors had been done by the Mahoneys. Except the father, the family had had nothing whatever to do with the ship, or her contents, beyond living in the proximity that has been described. Mrs. Mahoney had not been near any sick person, nor had any of those who afterwards were attacked in the house had to do with other sick persons than members of their own family.

*Yellow fever; recovery.* Hannah Mahoney, aged 11, was taken ill on September 22d, with headache, prostration, hot dry skin, and vomiting of everything she took into her

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stomach, but of nothing else. The vomiting continued up to the 25th, and the stools were frequent, loose and black; has had no active delirium, but has lain half conscious and stupid.

She was attended by Mr. Mowatt of the Swansea infirmary.

Seen by myself on October 23th. Skin then hot and dry, no eruption, no jaundice. More conscious to-day, and can just answer yes or no. Pulse 108, medium strength. Temperature of axilla 101.8°. Respirations not accelerated. Tongue dry and brown; slightly moist at edges; sordes on teeth; no vomiting now. Several loose stools; none seen. Has passed fair amount of urine, not particularly dark. On October 1st, again seen by me, and found lying outside bed dressed. Skin and conjunctivæ moderately jaundiced. No eruption on skin. Headache, and slept ill last night, but no other head symptoms. Sordes gone from teeth. Tongue dryish, thick, yellow fur. No vomiting. Abdomen concave; epigastrium slightly tender. No stool yesterday or to-day. Pulse 98. Temperature 99.0°. Respirations quiet.—October 2d. Tongue still dry; still no vomiting; no stool. Complains still of head. Pulse and temperature about same. Ate an egg this morning. October 3d, more jaundiced. Skin moderately cool and dry; no eruption. One stool from an aperient powder last night, said to have been dark. Liver edge three quarters inch below false ribs. Head much better to-day. Perhaps a pint of urine passed in the 24 hours; not seen; reported to be natural in colour. October 4th, less jaundice. Tongue cleaning; moist at sides. No sordes. No vomiting, but no desire for food. Liver edge as before. No stool. Slept well for first time last night. Skin dry; temperature 99.10. No eruption. Pulse 84. October 5th, going on well, but slowly.

This girl had been in the same circumstances as her mother.

*Yellow fever; death.* William Mahoney, aged 18, a ship carpenter in employ of Messrs. Richardson, living with his family in Cobre Row.

Was taken ill on September 23th, and seen by Mr. Mowatt on the 25th, when he had dry tongue, great tenderness of the whole abdomen (especially of the iliac and hepatic regions), occasional sickness, but not of a dark material, and no diarrhœa. Pulse very rapid. Skin dry, distinctly yellow, conjunctivæ same; no spot on skin. On September 28th was perfectly unconscious; very restless and unmanageable. Refusing all kinds of food and medicine. Pulse hard and rapid. [Friends report of him, as of mother, that he had much black vomiting. Mr. Thomas, who saw the case, noted small round petechiæ on the body.] September 27th, Head hot; unconsciousness continuing. Motions dark, of liquid consistence, they and the urine passed involuntarily. Skin still dry; head hot. Sank rapidly, and died in the evening.

The external post-mortem appearance of yellowness mixed with lividity was also noticeable in this boy, being very striking to myself as well as to Mr. Mowatt.

William Mahoney had been under the same conditions for infection as his mother and sisters, and had also been working on vessels in the "patent slip" of Mr. Richardson's yard. He had been engaged from September 9th to September 15th on the the Fort Regent (see Jesse's case), and he had also been working on vessels from Chili and the Mediterranean, which lay within a hundred yards of the Hecla; but he always stated that "he had not been near" the Hecla herself, and that he had nothing to do with any sick people.

*Probably yellow fever; recovery.* Jane Mahoney, æt. 10, taken ill on morning of September 30th, with headache, but no pain in back; vomiting of bile and food. No epistaxis. Seen by myself on October 1st. Skin hot and dry; injected, but no rash; a very doubtful trace of jaundice. Temperature 102.90; pulse 128. Tongue moist, thin white fur, not very red. No epigastric tenderness. Vomita seen, of yellow liquid and curdled milk. Abdomen soft, not tympanitic. One stool yesterday evening, reported of natural colour, but rather loose. Plenty of urine of natural appearance. October 2, Head hot aching; no wandering. No pain in back, but some in legs. Skin about same heat as yesterday. Pulse 108. Tongue red, moist, slight white fur. Thirst. Frequent vomiting of same yellow stuff. Two stools this morning, brown, not very dark. Slight yellowness of conjunctivæ to-day. Urine copious, not seen. October 3, Headache continuing; slept ill. Pains in legs continue. No œdema. Skin not so hot; no eruption. No increase in yellowness of eyes, and none at all observable on skin. Pulse 92; weak, regular. Tongue dry in centre. Has vomited frequently, but to-day only curdled milk and water, without bile. Slight epigastric tenderness. One stool, after a powder, last night; not saved for inspection. Liver an inch below edge of false ribs. October 4th, Better. No jaundice. Temperature, 97.70. Tongue dry, furred in centre, red and moist at edges. Anorexia; has taken nothing but milk and water. Vomiting now only watery stuff. No stool.

On October 11, Mr. Mowatt met this child, with her sister Hannah, out in the street quite well.

*Probably yellow fever; recovery.* Susan Mahoney, aged 6, seen by myself on October 3d, the first day of ailment. Began to cry with headache at seven in the morning, and soon after, before she had any food, vomited thick slimy stuff, and has vomited several times since, but nothing of a yellow or black colour. No tympaniti, nor epigastric tenderness. Tongue white, moist. No jaundice. Liver one inch below ribs. Bowels confined. Skin hot; pulse 160. No pain in legs or back. In the later part of this day headache became better and vomiting ceased, and on visiting the house next day she was reported to be well and had gone out. However, on October 5th, she was found at home, lying down, and feeling very bad. Skin was very hot; guessed by the hand at about 104°. Surface much injected, but no rash. Face flushed; no jaundice. Pulse 150. Tongue



moist, red, slight white fur in centre. Had vomited all food, even cold water, since last night. Some pain in belly, but no epigastric tenderness. Child looks very heavy, and says her forehead aches. Mr. Mowatt reports, on October 12th, that she had since progressed very favourably, all her symptoms gradually disappearing, and that she was then quite convalescent. The sickness did not continue; there was no yellow tinge of the skin, nor any symptoms that would have suggested yellow fever, in the absence of the other cases in the family.

The two last recorded children had been in the same conditions of exposure to sources of infection as the other members of the family, with the addition of having been in the house (though not sleeping in the same room) during the illness of the previous cases. Other four or five persons living in this house, and all other residents in Cobre Row remained well up to October 21st.

*Yellow fever; recovery.* James Hickey, aged about 35, landlord of the Pelican Inn in the Strand, was taken ill on 20th September suddenly with vomiting, and a "queer feeling," which he did not further describe. Seen by Mr. Howell Thomas on the morning of the 21st, and found in bed on his right side. Countenance depressed, and anxious. Cramp in the extremities. Skin dry and harsh. Conjunctivæ very red. Pulse 102. Tongue dry and furred, except the tip and edges, which were light red. Intense thirst. Pain at epigastrium increased on pressure. Incessant vomiting through the night of matter resembling mustard in colour. Confined blackish stool. Urine scanty, dark smoky brown, highly albuminous. Next morning, September 22d, had a very bad night, and found rather worse at visit, having vomited everything taken. One stool of very black colour. Pulse 109. Urine much the same in quantity and colour. A little easier in the evening, having less pain in epigastrium, and less cramp, but severe headache and lumbar pain. Had vomited frequently during the day. Another very black and offensive stool. Pulse again 109. On the morning of 23d again seen; much less headache and pain in back, but more in epigastrium. Slight intolerance of light. Pulse 103. Vomited every ten minutes through the night, much darker matter than before, resembling strong beef tea. Fancied he could eat a chop, but could not touch it when brought. Evening, more thirst; complete anorexia; less epigastric tenderness. Bowels still rather constipated; one very black stool. Pulse 100. Urine increased in quantity; higher in colour. September 24, passed a much better night, sleeping at least three hours. Skin and conjunctivæ very yellow; mulberry coloured spots on either side of abdomen and above back. Vomiting not so frequent, but vomited matter darker in colour. Two loose stools, not so dark or offensive. Pulse 98. Urine passed frequently; not so dark or so albuminous. Same evening found still a little better, having slept a little. Pulse 95. Had vomited three times only, lighter coloured matters. One stool, still less dark. On 25th, at 10 a.m., same state as last night; at half past seven p.m. had taken a little fish, and enjoyed it. Had less thirst, but had vomited twice. One stool. Pulse 93. Had passed urine twice. On 26th September, still improving. Slept four or five hours, and feels refreshed and stronger. Sitting up in bed, and wanting to get up. Skin and conjunctivæ very yellow. Skin beginning to get moist. Pulse 93. Tongue clearer and moister. Vomited once in night. No stool. Urine much lighter in colour. Evening of same day, had slept a little. Skin warm and perspiring. Pulse 90. Tongue cleaning and moist. No vomiting. Plenty of urine. On 27th September, much better, but decidedly more yellow. Mulberry spots continue. Appetite good. Sat up for an hour.

Hickey was seen by myself on October 1st, sitting up, convalescent. Intensely jaundiced. Skin cool; natural in moisture. On the trunk, front and back, a copious slightly raised rash of a very bright mulberry colour, disappearing almost absolutely on pressure. Tongue clean and moist. Pulse 80. Has not lost flesh much by the illness.

October 16th, has now quite recovered, but traces of jaundice still persist.

*Yellow fever; death.* Elizabeth J. Hickey, aged 23, wife of former patient, living at same house. First ill on September 22d. Few particulars can be obtained of her case beyond the general statement that her symptoms much resembled those of her husband, with the addition of copious black vomiting. She miscarried on September 25 of a five months' child, then gradually sank and died on the 26th.

Hickey had not been on board the Hecla, nor since her arrival had he been at all on the other side of the water, nor nearer to the vessel than his own house. He had bought nothing from the ship. This man's case and his wife's were the only ones of all those of yellow fever in Swansea where the patients had not been resident or engaged upon the island. Hickey's house is situated about 150 yards from the spot where the Hecla unloaded, some small courts, and the breadth of the North Dock lying between. On one day, but not until after Hickey was taken ill, she lay on the west side of the North Dock, and therefore a little nearer to the patient's house. But Hickey had a special indirect communication with the vessel. When Saunders was brought on shore on the 9th September it was to a house in Welcome Court, very near to the back door of the Pelican Inn; a small house only intervening. Hickey states that he did not see Saunders during life, but that he helped to put the coffin on the cart on the afternoon of the 9th, and he took some whiskey in to the friends of the man, probably before the means of disinfection were used. The room in which Saunders lay had not much furniture or bedding in it; and what of such things came out of the ship could not be ascertained. The drains and privy of Hickey's house do not communicate with those of Saunders' house, nor with any other.



## APPENDIX.

No. 16.  
On Yellow  
Fever at  
Swansea, by  
Dr. Buchanan.

*Doubtful yellow fever; recovery.* Dr. Griffith, M.B., living in Dynevor Place, a high part of Swansea, away from the docks. Was in the country on September 21st, when he felt ill almost suddenly, and in the course of three hours was so weak that he could not stand, and went to bed where he was, in the country, in the afternoon. He had two or three distinct rigors and his feet were cold. No positive headache, though he had had some before starting in the morning. His pulse was very languid. After a good dose of hot grog, he felt better at midnight. On 22d he still felt ill, but returned home. Observed his urine very high coloured, evidently bilious, but was not then jaundiced; bowels were confined. Thence to 28th remained in much same state, taking no food, but not vomiting. Bowels confined. Began to be jaundiced on 24th, and stools, at last obtained by mercurial purges, were light drab coloured. On 28th he felt decidedly worse, and on evening of 28th vomited several times food with large quantities of dark thin fluid, which tasted acid, and not bitter; perhaps its brown colour might have been due to some claret he had taken. Yellow colour of face was now more decided, and urine remained very bilious and scanty. Throughout he had not been very feverish, but perspired easily, and found his pulse slow, about 60. His head never ached much, and not at all after the first four days, but he felt very muddled and stupid. Every day he got about to see some patients; but at times he was unable to go when he was sent for, feeling too weak and ill to move. On September 30th he saw for the first time a trace of bile in the stools, and felt better, and his head clearer; urine, which had been very bilious and scanty, improved; and on October 1st he was convalescent, though the jaundice remained on October 2d, when he gave me this account.

From the time of the Hecla coming in Dr. Griffiths had not been near her, nor even near to the docks. He saw none of the crew, and the first of yellow fever he saw was Bowen, on the 19th, two days before his own illness.

*Yellow fever; death.* Mrs. Rachel Williams, living at the top of Cobre Row. Her case is given in the text of the report. She was taken ill on September 29th, and died on October 1st, having had distinct black vomit and jaundice.

*Yellow fever; death.* Nathaniel Williams, aged about 40, a carpenter in Messrs. Richardson's copper ore yard, was seen by myself on October 1st and 2d, and then was in quite good health, though on the 2d distressed by the loss of his wife. Was at her funeral on October 3, and only on morning of October 4th began to be ailing, with slight headache. Sought medical advice on the next day, and at 5 p.m. on October 5th was seen by myself. He was then in a state of intense prostration, seemingly conscious, but answering no questions; much quiet wandering reported by friends. Says "no" when questioned if his head aches. Makes no complaint of back and loins. Has a peculiar vertical frown, much like that observed in his wife. Skin not hotter, perhaps cooler, than natural. Conjunctivæ decidedly yellow. Over both hips small purpuric spots, mixed with a few faint stains. Pulse 90, regular and strong, feels slower.\* Tongue intensely dry and brown. Thirst great. Epigastrium very tender. Vomited yesterday, but only food. To-day has vomited for the first time a tablespoonful of a liquid looking just like beef-tea grounds, and of acid reaction. Has had no beef-tea. The microscopical elements of the vomit (examined next day) were scanty blood in masses and few separate corpuscles, epithelium of the squamous variety only; great quantities of torula, and some starch granules. One stool to-day, seen, scanty, yellowish, slimy. Urine reported to have been plentiful, thick and dark, up to this morning, and that he has passed very little since 4 a.m. At visit he was got to pass some urine, which was about 2 oz. in quantity, clear, pale amber-coloured, with a trace of albumen. He died about 8 p.m., on the same evening, with the same kind of trismus and convulsive action that was met with in his wife. He remained semi-conscious to his death. No post-mortem examination could be procured.

Williams, up to the time of his illness, was in the same conditions as his wife in regard to the proximity of his residence to the Hecla and to her freight. In the course of the first week that the Hecla was discharging cargo (10th to 17th September) he was on board her once, but he could not say which day.

When he was taken ill he lay at a house in the town, at some distance from his own, on the other side of the water; in this house no inmate has been taken ill up to the date of this report.

The distance of this man's attack from the direct communication with the Hecla is remarkable. It was 25 days after she came into port; 23 days from her professed disinfection; 20 days, or thereabouts, after he had himself been on board her; 14 days from the end of her discharging her cargo; and six days from the time of the vessel having been put out of Swansea Docks. His illness began five days after his wife's definite symptoms began, and three days after her death.

**CASES ON THE SMACK ELEANOR.**—On September 21st, the Eleanor, a wooden vessel of 48 tons, Richard Evans, master, and a crew of three men, laden with copper ore, arrived from Swansea at the pilot station of Llanelly (the port next to Swansea on the west), and was there boarded by a Llanelly pilot named Thomas, who took her along the Burry Estuary as far as the lighthouse, and there left her in charge of another pilot,

\* This appearance, to a practised finger, of the pulse being slower than it was proved to be by the watch, was noticed in more than one case. It seemed to come from a deliberate character, so to speak, of the stroke, perhaps the strength of the stroke being so much greater than in the ordinary fevers of England.

who saw her to Penclawdd, a village where there are copper works, on the side of the estuary opposite Llanelli. At that village she discharged her cargo, and on the 22d September arrived at Llanelli in charge of a Penclawdd pilot.

At Llanelli she lay in the channel to the new dock, outside the dock, at a considerable distance from any houses, but quite close to other ships. Here she proceeded to load with coal.

The pilot Thomas can answer that she had no sickness on board on the 21st, and he was told by Slocum, the mate of the vessel (whose case is presently to be told), that all on board her were well on the morning of the 24th. However, on the 25th, one of her seamen named Charles Hayes died in the forecabin of the Eleanor.

*Perhaps yellow fever; death.* An inquest was held upon Hayes's body on the 26th, and the coroner has obliged me with copies of the depositions. Evans, the master, states that on the 23d Hayes complained of weakness and of internal piles. [The landlady of the inn where the inquest was held had understood he had venereal disease.] Did not see him again till the 25th, when he said he was very poorly. Upon returning to the vessel, after seeking an order to admit him into the workhouse, Evans found him apparently in a dying state, and he shortly died. There was no violence. Hayes had not complained of sickness [? illness] during the time (twenty months) that he had been with the vessel. He complained of no pain till the day of his death, and took his meals well. The mate, John Slocum, confirming this evidence, states that Hayes was not well on the 23d, got worse on the 24th and 25th, and died on the 25th at 1 p.m., continuing to work up to a very short time of his death. The other seaman, Daniel Stapleton, says that Hayes complained of weakness on the 23d, but of no particular pain; that he went in search of a doctor on that evening, but was too late to see one; only complained of piles. Hayes was on shore on 24th, and was on the deck of the Eleanor on the 25th, but appeared worse. He went down into the forecabin about one o'clock, when witness found him lying on his belly, and he shortly afterwards died.

This was all the evidence. No medical man saw the case, and none was called to give evidence on the inquest. No post mortem examination of the body was made. The verdict found was, "Died by the visitation of God."

*Yellow fever; death.* The mate of the Eleanor, John Slocum, aged 60, was stated to have been taken ill on September 25th, but he gave evidence at the inquest on the body of Hayes on the 26th, and nothing particular was observed in him then. He was sent aboard after the inquest, but came on shore again the next day, when he was taken in at the Prince Albert Inn, and Dr. Richard Thomas saw him there.

He was then very feverish and prostrate, but not delirious, complaining of headache, and pain in the epigastrium, which seemed to be caused by the incessant vomiting. Threw up food and bile; bowels had been confined some days; pulse was full and frequent. On the 28th he was reported better, but was not seen by Mr. Thomas. On the morning of the 29th was found apparently better; he was lower, but suffered less pain, and was not delirious. Pulse was weak, but frequent; the skin was clammy, not hot. Tongue dry, with a brown fur. Vomiting had ceased, and the bowels had been well acted on by calomel and colocynth; urine was highly coloured and scanty. At 1 a.m. on the 30th September Mr. Thomas was called to him, and found him greatly changed, evidently sinking; greatly collapsed and pulseless, muttering delirium; no convulsion. The tongue as before; he was vomiting copiously very dark matter, which Mr. Thomas thought was blood, not in clots, but as if half digested. The stools were seen for the first time this morning very loose and black, as if from dark blood, but no florid blood in them. The skin was not noticed to be yellow; upon the belly spots not removable by pressure were observed. Conjunctivæ were yellowish throughout, and not observed to be yellower in the progress of the disease. [His landlady, however, who nursed him, stated to me spontaneously that the whites of the eyes were very yellow. Her description of what he vomited was that it stained the sheets like coffee.] He died at 5 a.m. on the 30th September. The body was not seen by Mr. Thomas after death. No post-mortem examination was made.

*Yellow fever; recovery.* The boy of the Eleanor (the Daniel Stapleton of the coroner's depositions) was noticed by Mrs. Forsdyke, the landlady of the Prince Albert Inn, who had nursed Slocum, to be ailing on October 2d, as if he had a cold. He was frightened too, having been with Hayes at his death, and knowing of the death of his other fellow sailor. Mr. R. Thomas visited him in the evening, and found him feverish, thirsty, with full rapid pulse, headache, nausea, but no vomiting; confined bowels. No other symptom was noted. An emetic was given, and next morning he walked half a mile to Mr. Thomas's house, and seemed to have very little the matter with him. He got his wages paid, and went off home to Frampton-on-Severn, on the same day, October 3.

The history of the boy after reaching Frampton is told in the following extract from a letter from Mr. Watts of Frampton. "He was ill, when he got home, with an undefined attack of fever, and slight yellowness. I then supposed that it was a simple attack of continued fever, complicated with jaundice. He had headache, pain in the loins, but no sickness or diarrhoea. In a few days the jaundice became intense, the face almost black. At the end of a fortnight he complained of great pain in the right leg, and had inflammation of the lymphatics, with general swelling of the limb, rapidly ending by abscess in the thigh, which I opened early. At the end of the third week he was much improved in health, and has so far recovered as to go to work, though the skin has not entirely lost its yellow cast. The case throughout was characterised by very slow

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No. 16.  
*On Yellow  
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No. 16.  
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 Fever at  
 Swansea, by  
 Dr. Buchanan.*

"pulse and extreme prostration. I was not aware of Stapleton's connection with yellow fever cases until I had attended him some time, and my diagnosis was not all clear."

On the evening of October 2d, the chairman of the local board of health of Llanelly, having a certificate from Mr. Richard Thomas that the Eleanor ought to be separated from other vessels, ordered her out of the port. It is reported that some measures of disinfection were used. Next day, October 3d, Evans having got a new crew of two or three men), not from Llanelly it is said, for the Llanelly men were afraid of his ship), and having already loaded with coal, sailed for Waterford.

Hayes body was buried immediately after the inquest, and Slocum's as soon as possible after his death.

Up to October 4th, when inquiry was made, no similar case, nor any case of sudden illness, had occurred in or about the houses where the sick seamen had been, nor had any such case been reported from the shipping. Llanelly is a very dirty town, but no fever of this sort is known to have occurred there before. Mr. Thomas knew of only five or six cases of any sort of fever, and they were of the common continued type, and none were in the neighbourhood of the docks. At the date of this report no other case had occurred at Frampton, though it was a crowded cottage where Stapleton lay ill.

The Eleanor was loaded at Swansea on September 18th. She came to her berth, however, partly inside the Hecla [that is, with part of the vessel lying between the Hecla and the wharf,] on the evening of the 16th, and remained there over the 17th. While taking in her cargo of copper ore, she lay close above the Hecla, to the north. This week was just the time the Hecla was discharging cargo. No ore from the Hecla was taken by the Eleanor. The crew of the Eleanor had been with her for various periods, the shortest being nine months.

## EXPLANATION OF MAP.

A small portion of Swansea is here represented, with all inhabited houses marked *green*, with the exception of those where cases of yellow fever occurred, and they are marked *red*. The *red dots* indicate cases of fever occurring in persons employed in this neighbourhood, but resident elsewhere.

- A. shows the position of the "Hecla" from the 9th to about the 24th September; thenceforth to the 28th September she was placed in the Beaufort Dock.
- B. is the cottage to which Saunders was removed from the ship on the day of her arrival, and where he died the same day of yellow fever.
- C. is the house in the Strand where the Hickeys lived.
- D. marks the position of the ship where Norman worked.
- E. denotes Bowen's case, who patrolled this side of the dock.
- F. shows the patent slip where Jesse, Thomas, and Lilley, as well as one of the Mahoneys were employed.
- G. is the house in Bath's Yard where Mrs. Davies and Eliz, Harris died.
- H. is the place of work of Jones.
- I. denotes the case of Wilkins, who was employed in Bath's assay office.
- J. is the house where Mrs. Wilson and her family lived.
- K. where Margaret Williams and Miss Trestrail were attacked.
- L. The Mahoneys' house in Cobre Row.
- M. Rachel and Nathaniel Williams' house.
- N. Mrs. Brown lived here.
- O. The blacksmith's shop where Colwell worked.
- P. The position of the sloop "Eleanor" while taking in cargo.





PART OF  
SWANSEA  
See Explanation



No. 17.—REGULATIONS made by the FRENCH GOVERNMENT, with the advice of M. Mélier, Inspector-General of the Sanitary Service, on occasion of the outbreak of yellow fever at St. Nazaire in the autumn of 1861, and applied to ships arriving from the Havannah, or from any other place infected, or suspected to be infected, by yellow fever; with remarks thereupon by the Medical Officer of the Privy Council, as part of an office-memorandum (dated 10th April 1862) on the facts of the outbreak in question.

No. 17.  
*Quarantine  
Regulations  
made by  
France on  
outbreak of  
Yellow Fever  
at St. Nazaire,  
with remarks  
by the Medical  
Officer.*

Article 1. These ships must not enter the harbour nor the roadstead.

Art. 2. Orders are given to the pilots to take them to the anchorage of Mindin, and to place them at as great a distance as possible from each other.

Art. 3. On arrival, the examination of these ships will be the same as if they had come with foul bills of health, that is to say, by questioning from alongside, without any other communication.

Art. 4. Each ship will be visited, as soon as possible, by the sanitary doctor or his assistant.

This doctor will report in writing the result of his visit.

Art. 5. Every person suspected of being sick is to be immediately removed to the hospital ship.

Art. 6. Persons ill of ordinary complaints, and passengers in good health, are isolated and kept under observation on board of the ship prepared to receive them. The same course will be followed with regard to any of the crew discharged.

Art. 7. Every person placed under observation will be bathed and dressed in clean clothes. The articles that are too dirty or of little value will be burned, the others are to be aired and purified.

Art. 8. The Sanitary Service will determine the duration of time of observation, which is to be from three to seven days, according to circumstances. (Article IV. of the Sanitary Convention. Article 15 of the Decree of 24th December 1850. Arrêté of 16th August 1861).

Art. 9. It is expressly recommended to avoid all delay in this transfer from ship to ship, in order that the persons may be removed as soon as possible from the influence of the ship supposed to be infected.

Art. 10. Every person whose presence is not indispensably necessary on board, is to be removed from the ship, and placed under observation.

Art. 11. These preliminary measures being carried out, the ship is to be carefully swept and cleansed.

Art. 12. All apertures are to be opened, and the hatches are to be removed.

Art. 13. Ships provided with windsails or ventilators are to set them to work as soon as possible.

Art. 14. To facilitate the circulation of air throughout, it is recommended to move the cases,\* and to put as many as possible on deck.

Art. 15. It is forbidden to begin unloading before these precautions have been taken.

Art. 16. As soon as it is possible to penetrate into the hold, all accessible parts of the ship are to be sprinkled with chloride of lime water.

Art. 17. This mixture is prepared by putting two platefuls of chloride into a bucket of water.

\* The ships from the Havannah are generally laden with sugar in cases.



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Quarantine  
Regulations  
made by  
France on  
outbreak of  
Yellow Fever  
at St. Nazaire,  
with remarks  
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Officer.

Art. 18. This liquid is to be thrown against the ship's sides and bulkheads, by means of a hand or garden pump. Ships not provided with these instruments will receive them from the Sanitary Service.

Art. 19. It is important that this liquid should run along the ship's sides and bulkheads, down to the bottom of the hold, and particularly into the pump well, so as to disinfect the ship's sink.

Art. 20. This operation to be repeated every time a part of the cargo is removed.

Art. 21. The cases are likewise to be sprinkled with the same liquid. This sprinkling, when carefully performed with a broom, cannot be of any serious inconvenience, even should a part of the liquid get into the cases.

Art. 22. These precautions must be more strictly attended to as the lower tiers of goods are laid bare, and on getting to the bottom of the hold.

Art. 23. The cases unloaded are to be deposited on board of lighters or tenders, and left open to the air until the time of their being sent away, which is regulated by the Sanitary Service concurrently with the Customs.

Art. 24. During the voyage up the river to Nantes the cases are to remain exposed to the air, the lighters or tenders being covered over with an awning only.

Art. 25. When the ship is empty she is to be thoroughly cleaned, carefully scraped, frequently sprinkled with chloride water, and afterwards whitewashed with common lime water mixed with one-tenth of chloride of lime.

Art. 26. The ship is not to take in a fresh cargo before she has been visited by the Sanitary Service and authorized in writing.

Art. 27. The ship may be unloaded either by her own crew or by hired men.

Art. 28. All those who have taken part in the unloading are placed under observation of from three to seven days, on board of the frigate prepared for this purpose.

Art. 29. A sufficient number of sanitary guards will enforce the execution of these measures, and prevent the communications forbidden by the Regulations.

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REMARKS by the MEDICAL OFFICER of the Privy Council.

EXTRACT.

9. M. Mélier's regulations are intended to guard against various kinds of danger. Certain of them apparently refer to the belief that ships, irrespectively of the persons in them, may acquire in places where yellow fever prevails, and may then propagate to other ships in other places, the specific power of breeding yellow fever (as though by some local malaria) among persons who afterwards inhabit or enter them;—and the regulations which refer to this belief provide for *the isolation, cleansing, and elaborate disinfection of suspected ships*.\* Certain other regulations are based on the belief that yellow fever follows the laws of common contagious fevers; and these regulations provide for *the quarantining of all persons, sick and healthy, who have breathed the atmosphere of the ship*.† Further, lest either of the above-mentioned

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\* See Articles 11 to 22, 25, and 26.

† See Articles 6, 8 to 10, and 28.

dangers should be capable of acting mediately, there are some regulations which provide for *the cleansing or disinfection of cargo, persons and clothing, from on board the suspected ship.*\*

10. It is an important fact that M. Mélier's regulations were not applied only to ships in which cases of yellow fever had occurred within a certain number of days before arrival in port, nor even only to ships in which cases of yellow fever had occurred at some time during transit. They were applied to all ships coming from infected and suspected ports. And, if the regulations were in themselves right, there was good reason for their being thus widely applied. For, how many days' non-occurrence of yellow fever aboard ship will prove that the ship is not latently infected with yellow fever? Did the *Anne Marie* leave Havannah an infected ship? but it was not till at least seventeen days afterwards that her first case of yellow fever occurred! Did the *Anne Marie* bring infection to the port of St. Nazaire? but thirteen days had elapsed since her last attack of yellow fever? Did the *Arequipa* on the 1st of August leave St. Nazaire an infected ship? her first case of yellow fever occurred on the 5th of August; but her next case did not occur till seventeen days afterwards; nor did her fifth case occur till twelve days after her fourth case; nor her sixth case till ten days after her fifth! What limit of days, then, could M. Mélier have fixed as proving the non-infectedness of a ship? And, in the absence of sufficient data for reasonably fixing such a limit, could he have done better than apply his regulation to every suspected ship? It is at least evident that the ten days' limit which France and Sardinia had adopted on the Report of the Sanitary Congress, and, *à fortiori*, the six days' limit which England has deemed sufficient for her own purposes, would, under the circumstances, have been valueless.

11. M. Mélier's regulations were, in my opinion, not all of equal value. But, taking them in the first place indiscriminately, and looking to what ensued on their being adopted as a whole, I must say that very strong testimony in their favour is borne by the result, as recorded in M. Gestin's letters to the Vice-Admiral at Lorient, and letter to Sir A. Perrier. It seems in a high degree probable that, but for the adoption of those regulations, there would have been further serious mischief at St. Nazaire.

12. I have ventured to express a doubt whether M. Mélier's regulations were all of equal importance to his object. And the regulations which, in my opinion, particularly demand criticism, are those which provided for the quarantining of sick and suspected persons.

These regulations (Articles 5, 6, 8, 10, 28) may be taken to express M. Mélier's belief as follows:—that yellow fever is communicable from person to person, in the same manner as small-pox or typhus is communicable, by means of a *contagium* bred by the bodies of the sick; that a certain interval of time (the so-called *period of incubation*) intervenes between the infection of a person by the cause of yellow fever and the outbreak of yellow fever in such person; that this period of incubation never exceeds seven days, and under certain circumstances (which M. Mélier nowhere specifies) may practically be considered as of three days; that accordingly a person who has been exposed to a possible cause of yellow fever, and is then withdrawn from exposure to such cause, must, though in good health, till a time "which is to be from three days to seven days, according to circumstances," has elapsed, be

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\* See Articles 7, 23, and 24. For the purposes of Article 7 and of other like regulations, *persons* are in the category of ship-carried effects. Compare below, section 19.

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regarded as capable of having and spreading yellow fever, but may after that time, if he have remained without signs of the disease, be treated as no longer an object for suspicion.

13. High medical authorities differ from one another as to the question whether yellow fever be a truly contagious disease. And I have already stated my opinion that this question is not conclusively answered by the record on which I am commenting. But M. Mélier, I presume, had to advise every precaution which might conduce to public safety; and, if this was his responsibility, his regulations cannot, medically speaking, be blamed for over-cautiousness against dangers which were doubtful. If M. Mélier had not framed his regulations on a contagionistic basis, he might indeed have been praised by non-contagionists for omitting superfluous precautions, but (especially after the startling fact of M. Chaillon's death) could scarcely have hoped to satisfy the local population that he had advised every desirable precaution.

14. On the other hand, I feel bound to add that, in my opinion, it is very questionable whether, on the contagionistic doctrine, M. Mélier's lazaret-regulations were such as could be expected to prove effective for their purpose. Lazaret-observation, in order to be of use against any contagious disease, must be based on a knowledge (or if not on an accurate knowledge, at least on a safe outside estimate) of what is the given disease's period of incubation. To "observe" suspected persons for a time shorter than the incubation-time of the disease is, of course, an ineffective "observation." That among authors who are quoted as authorities on the subject of yellow fever, there are very many who attribute to the disease (either by rule or by exception) a longer, even much longer, period of incubation than the seven days which M. Mélier takes for his maximum; this is a point on which I do not insist. But I have difficulty in conceiving on what principle M. Mélier can have acted in charging the local sanitary service with the discretionary power vested in them by his 8th regulation; for, under any circumstances, where personal quarantine is necessary, the quarantine, if it is to have any meaning, must, as above stated, last at least as long as the full incubation-time of the disease; and, among observers of yellow fever, it seems commonly agreed that the incubation of this disease does not restrict itself to nearly so short a time as the three days which M. Mélier takes for his minimum period of observation.

15. Further, it deserves especial notice that in many instances before M. Mélier's arrangements were established, and even to some extent after their establishment, persons whom he would have kept under observation, as well as persons actually suffering from yellow fever, were received among the local population without harm resulting to the latter\*—a fact which remains of high importance, even though other facts apparently conflicting with it were observed.

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\* For instances:—(1.) "The yellow fever appeared among the labourers early in August, and between the 9th and 12th, seven of those who had unloaded the ship "died on shore."—*Sir A. Perrier*, p. 2. Yet in most of these cases there was no local extension of yellow fever; and in the few instances where contagion is said to have extended to persons on shore, these secondary patients are not said to have infected other persons. (2.) "The crew had insisted on immediately leaving the 'pestiferous' ship, and went to their homes. Inquiries were subsequently made respecting these men by the Commissary of Marine, who had given their permits, and it was ascertained that none of them had either transmitted the disease or had it themselves."—*M. Reynaud*, p. 31. (3.) The labourer who, having helped to unload the *Alphonse Nicolas Cézard*, broke M. Mélier's quarantine on August 20th, and was the next day taken with yellow fever, remained on shore till the 2d September, two days before his death. And (4.) What infection came from the sick of the *Cormoran*, of the *Lorientais*, and of the *Indret* lighters?



16. On both grounds then I think it improbable that the non-extension of yellow fever in France was due to the lazaret-regulations which M. Mélier established. And the result, so far as it was due to the enforcement of M. Mélier's regulations must, in my opinion, be mainly if not exclusively ascribed—in part to the practice of isolating every suspected ship, and in part to the disinfectant processes, under safeguard of which every suspected ship was unloaded.

17. With regard to the establishment which M. Mélier finds requisite for carrying into effect a system of personal quarantine there cannot, I believe, be any difference of medical opinion. Sanitary justice would surely not be done to persons who come into port in an infected ship, if it were required of them that, during certain days of observation, they should be imprisoned in that very atmosphere which the imprisoning government designates as infectious. Nor would it be reasonable that persons who are kept under observation, lest they be incubating a disease assumedly contagious, should be kept in contact with persons who actually are manifesting the disease. It needs hardly be observed that under either of these systems the proper object of the "observation" would be defeated. In proportion as the ship were infected, in proportion as the disease were contagious, the probation would in itself be condemnatory—would be like some old fire-ordeal revived, from which neither innocent nor guilty could hope to escape unburnt. Hence the necessity, on which M. Mélier insists, that every quarantinable person shall as soon as possible be withdrawn "from the influence of the ship supposed to be infected;" and that the quarantine establishment shall comprise as essential elements, first a special hospital for persons who have the quarantinable disease, and secondly, a lazaret of observation for persons who have been within range of infection.\*

18. It remains for me to consider M. Mélier's regulations with particular reference to the question of their applicability to this country. But here few words will suffice. For, subject to one qualification, the language which I have used in discussing the effectiveness of the regulations in France is the language which I should use in discussing, on medical grounds, the applicability of the regulations to England.

The reserved qualification is an important one. Are any special precautions against yellow fever necessary to the health of this country? There is no considerable reason for believing—there are, on the contrary, very strong reasons for disbelieving—that yellow fever can become epidemic in England. And accordingly, whatever may be the infectiousness or contagiousness of yellow fever in other countries, precautions against the communication of the disease from such countries to England are not of proven necessity, nor even of strong presumable value, for the purpose which they would pretend to accomplish. Conclusions more absolute than these cannot I think be justified by present medical knowledge of the subject. I, at least, will not venture to say that, whatever the heat of summer, whatever the arrival of infected ships, England is invulnerable by yellow fever. Still less will I venture to say that an infected ship, received among other ships into an English port, cannot cause these other ships to carry away with them, in germ, an infection which elsewhere may become most fatal. Our past national experience in the matter is the only standard to which

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\* It perhaps deserves notice, in passing, that labourers who take part in unloading an infected ship, even though the unloading be done with all sanitary precautions, are submitted by M. Mélier to the same quarantine as persons originally in the ship:—a regulation which evidently is but consistent with the rest of M. Mélier's provisions.

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I can refer ; first, the experience which is of common notoriety ; next, the experience which is special to quarantine officers at our ports of Transatlantic communication. Doubtless the English Government, if reconsidering its quarantine-regulations, will have before it from the records of the Council Office and the Customs, whatever experience of the latter kind can be useful.

19. Perhaps the question, in its medical aspect, may be best considered as one of comparison.

That England should insist generally on the wholesomeness of all ships within her ports, and on a preliminary disinfection of all incoming ships and ship-carried effects whereby infectious disease may be introduced, would doubtless in itself be of good effect. And, in principle, it would be but this,—that ships coming into port, and thus annexing themselves to inhabited territory, should be subject to the Nuisances Removal and Diseases Prevention Acts which the authorities of such territory administer.

Even that England should provide exclusively against yellow fever, by regulations for the isolation and disinfection of suspected ships, might medically have thus much said in its favour, that the infection which breeds yellow fever does sometimes seem very markedly, perhaps singularly and specifically, to attach itself to the mere body of a ship ; and that precautions against this infection, even if superfluous while the ship remains in an English port, might prospectively, if the ship were bound for warmer latitudes, be essential both for persons in the ship, and for countries to which the ship proceeds.

Again, if England could, by strict personal quarantine at her ports and by corresponding inland precautions, render it impossible for persons contagiously diseased to introduce and spread here the contagion of their respective diseases, great saving of life would of course result from provisions generally to this effect. For some of our most fatal diseases spread through personal intercourse. And, if such general provisions were in force, it might seem fit that yellow fever (though its contagiousness is much questioned among medical authorities) should for greater security, during any reasonable doubts as to its mode of propagation, be dealt with as though certainly contagious.

But the danger of leaving yellow fever unprovided against by restriction on personal intercourse, as compared with the dangers which are incurred by leaving without such restriction persons who may spread other diseases (persons, namely, who are infected with typhoid fever, smallpox, typhus, cholera, diphtheria, scarlatina, measles, and so forth) is, if we estimate it by our present knowledge, quite insignificant for England. And to enforce contagionistic precautions against yellow fever, yet at the same time to leave open way for such arrivals as that which last year brought typhus into Liverpool, would evidently be to precautionise in the inverse ratio of our actual experiences of danger.

20. It is to be added that direct precautions against contagion, as the exciting cause of any given disease, are in many circumstances less available than precautions of an indirect kind. Harbours and harbour towns ought to be kept especially free from whatever creates local pre-disposition for the spread of an imported infection. And, in this point of view, I beg leave to refer to the "General Memorandum" printed in my third Annual Report, "on proceedings which are advisable in Places attacked or threatened by Epidemic Disease."







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